ITEA Magazine

Country focus
The Republic of Korea

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The insights of Atos

ITEA4

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ITEA Magazine November 2021 — Number 40

ITEA is the Eureka Cluster on software innovation

ΣEureka

Dear ITEA Community,

We are at the start of ITEA 4 and it is a good time to consider one of the main trends that will shape this programme: the green transition. This will certainly influence the scope of ITEA 4, and the need to move towards sustainable activities means a lot of transformations.

The development of renewable energy sources will significantly impact the energy sector, but we expect that every sector will have to undergo transformation. In all production activities (tangible as well as intangible), new approaches will be put in place to minimise the use of resources and energy and to favour recycling and the circular economy. The ICT systems will have a central role to play, not only in better management of resources and energy but also in improving their own energy efficiency and increasing the value delivered per resource used. ITEA 4 is already active in this domain. We have added the Smart energy challenge to the previous 7 ITEA challenges and held a very interesting customer workshop on this topic in June 2021. The Eureka Clusters Programme (ECP) is currently discussing the launch of a new Joint Call focused on sustainability, the first one being opened at the beginning of 2022. Sustainability is illustrated in this magazine with the views of Atos, one of the ITEA Board members, and complemented with some highlights of ITEA projects. This article should be of interest to you to understand how sustainability becomes central to any company strategy and to prepare new ideas for research projects tackling this challenge.

Besides this important trend, I would like to emphasise that for all the current software innovation challenges, international cooperation will play a key role in progress and in helping to boost the usefulness of software systems. To reduce the complexity of the systems, we need to automate and reach a consensus on the data semantics calls for collaborative research projects to address these challenges. In this ITEA Magazine we are very happy to focus on cooperation with Korea, which opens the door for common approaches in Europe and Asia.

To conclude, I would like to thank all of you who took an active role in the last PO Days. Even though the present COVID-19 restrictions meant that the event was organised online again, we witnessed a very active Community. The Public Authorities were very well represented in their exchange with the ITEA industrial members, and we saw very interesting ideas emerging from the different webinars and brainstorming sessions. This Magazine contains a short account of these Online PO Days.

We are happy to start ITEA 4 with such an active Community motivated to work on crucial topics for a sustainable future. Enjoy reading this rich ITEA Magazine.

Jean-François Lavignon

Focus on the Republic of Korea
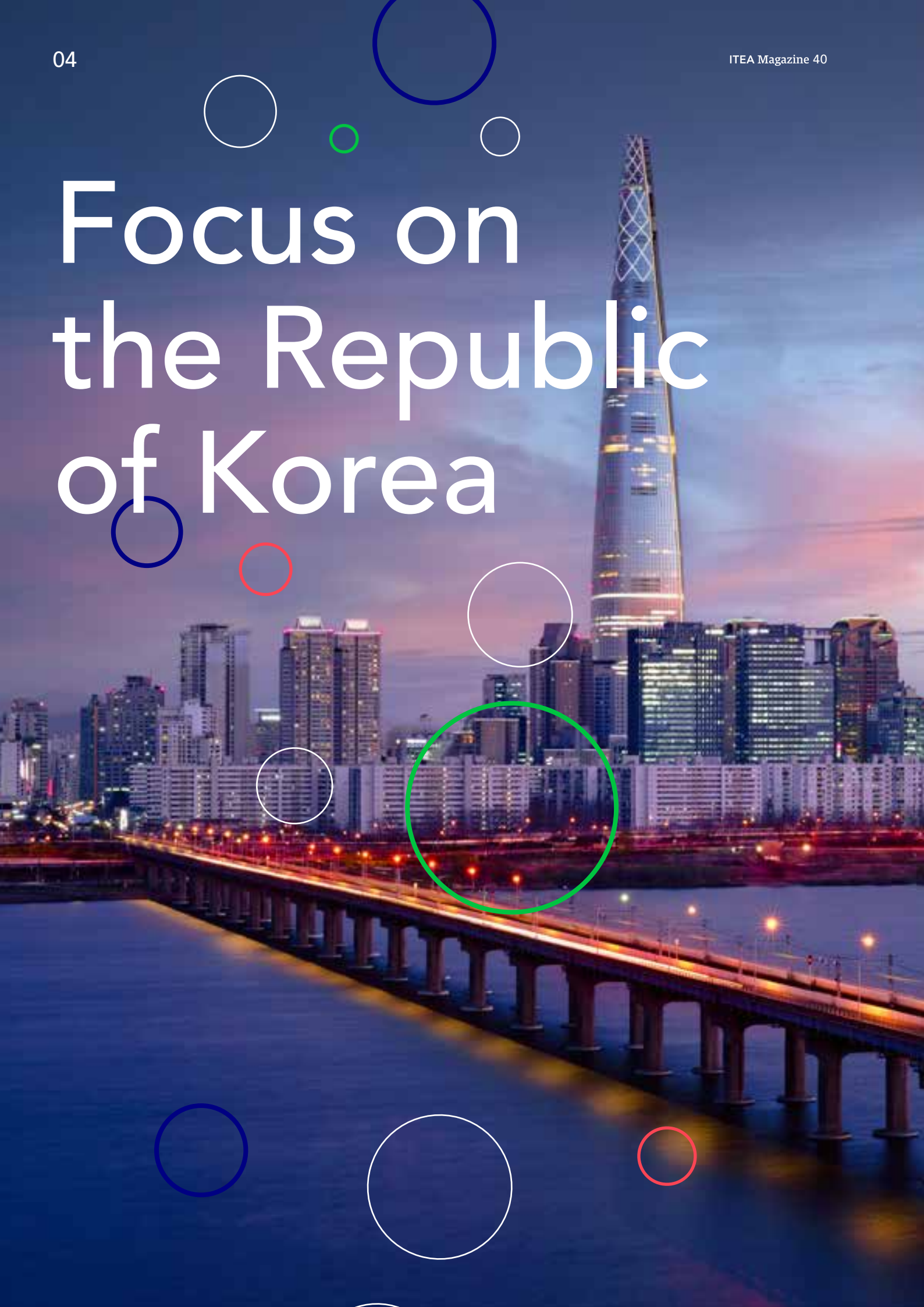
KIAT – a European foothold for global market penetration

Joo-Suk, Jason Kang is a National Project Coordinator (NPC) of South Korea and director of the KIAT Europe Office in Brussels. KIAT stands for the Korea Institute for the Advancement of Technology and was established to promote industrial technology innovation efficiently and systematically as well as provide support for the development of related policies. Jason, who has been in the KIAT for 16 years, worked for international R&D cooperation for half of that time. He arrived in Europe just before the arrival of Covid-19, so has spent the past year and a half doing his best, distanced and digital, to act as a liaison between companies and organisations in Korea and Europe, and within Europe itself. "The past year and a half has not been what I had imagined when I left Korea. One of my main tasks is to set up and expand networks, so all the face-to-face meetings I had looked forward to were confined to screen-based contacts. Hopefully, that will change soon and I can get to come face to face with the people I have met only over the internet." And it is through this same medium, on screen, that he explains the mission of KIAT, his own role in this and the relationship with the Eureka Cluster Programme in general and ITEA specifically in targeting potential partnerships and synergy.

Presence at the heart of Europe

"The fact that we have an office in Brussels is very much part of our strategy to achieve the objective of enabling global market penetration by Korean SMEs and mid-tier companies in the era of the Fourth Industrial Revolution," Jason explains. Founded in 2009, KIAT supports its government's industrial technology policymaking, establishing innovation strategies for industrial technology and devising basic plans for the development of the materials and components sector as well as formulating plans to promote technology transfer and commercialisation. The direction is set in new industry development strategy roadmaps. "So, what we are able to do is to provide information from a European context that will enable Korean SMEs and other companies to

find their way in Europe and, of course, the funding options that exist for them to participate in Eureka initiatives. So we help them to gain a good picture of the environment – R&D, technological, cultural, commercial and financial – in which they may find themselves as a partner and a player. In so doing, these companies stand a better chance of establishing themselves in the European landscape."

Support for software companies

ICT today is a huge component of any modern economy and for Korea, its importance cannot be understated, particularly when you consider that this accounts for 36% of Korean exports, with a value of 200 billion dollars. "However," Jason points out, "despite such impressive figures, we must admit that on the software side, the picture is a little less rosy. This is one of the main reasons why we are focusing on cooperation with the Eureka Clusters Programme, and especially ITEA because here we hope that Korean SMEs that are working in the ICT sector can gain the support they need from a software innovation perspective. For our part, we provide funding to enable Korean SMEs, start-up companies, research institutes and universities to set up research projects and for R&D initiatives. We have two ministries that focus on the software industry," Jason

explains. "The Ministry of Science and ICT and the Ministry of Trade, Industry and Energy, which also supports software companies with global market ambitions."

52 partners, 28 projects

As part of the Ministry of Trade, Industry and Energy, KIAT organises promotional activities to inform Korean companies of the opportunities to make use of the government's initiatives and to make them aware of the Eureka programme and what it can offer. "Knowing what is possible and feasible is half the work. We also realise that language can be a barrier to cooperation, so we also try to support companies in bridging this very essential gap. You can't cooperate with European partners if you can't communicate with them." Nonetheless, Korean companies and organisations have been involved in a large number of ITEA projects to date (52 partners across 28 projects). With some measure of success too. Such as the DANGUN project led by Professor Myoungho Sunwoo of Hanyang University (see partner article) and with the participation of other major players like LG Electronics, or STACK in which the Korea Electronics Technology Institute played a prominent role, and the recently finished OPTIMUM project involving ETRI, the Electronics

"ITEA is becoming a well-known name in Korea and has significant pulling power"

and Telecommunications Research Institute, aimed at supporting partners and industry in general to get ready for Industry 4.0 challenges.

A broader market perspective

Jason is very clear about the benefits gained by Korean companies from their involvement in the ITEA Community. "There are two key areas in which our companies benefit: technology and market. The software industry in Korea is not as well developed as it is in Europe and European partners have much to offer in terms of experience and expertise. With such a restricted market infrastructure at home, therefore, Korean software companies lack the wherewithal to go to the global market. Another issue that affects SMEs is that most of the large Korean companies like Samsung have their own research divisions and programmes. This limits not only the domestic market for SMEs but also opportunities for R&D partnering. Which is why we focus so much on helping these SMEs to explore the opportunities in the Eureka Clusters, which offer a step towards the global market."

Enthusiasm is high

"It has become evident that this opportunity is being increasingly recognised in Korea. We are seeing more and more interest in participating in ITEA projects. Enthusiasm is high.

ITEA is becoming a well-known name in Korea and has significant pulling power. They are able to see many success stories as a reference. Companies that have acquired knowledge and experience of both technology and market, and the value of the networks they have built up through being part of the ITEA Community. All this enhances their opportunities to do business on a more global scale. I can hardly think of a more attractive prospect."

Balance

In terms of the objectives of both ITEA and KIAT, they have much in common, yet Jason feels that when it comes to the approach taken by the Eureka Clusters, they might want to bear something in mind for Korean SMEs that participate in projects. "Korean companies could benefit more from a little more focus from a project perspective. We all know that ITEA has a bottom-up approach, and that's all well and good because the aim is to produce results that have impact. However, at the same time it would help if a bit more direction could be provided, top-down if you like, to help the participants gain this focus early on. I'm sure that this would give Korean participants greater certainty and get the ball rolling faster in the beginning."

More information

https://www.kiat.or.kr/

Hanyang University
the engine of Korean innovation

Hanyang University and Professor Myoungho Sunwoo are synonymous when it comes to innovation, especially in the field of automotive technology. Having graduated in electrical engineering from Hanyang University in 1979, Sunwoo went on to gain his master and doctorate degrees in the US before joining General Motors Research (GMR) Laboratories in 1985, where he worked on the design and development of various powertrain and chassis electronic control systems. In 1993, he returned to Hanyang University to take the lead for research activities as a Professor with the Department of Automotive Engineering.

Independent thinking and ground-breaking research

In 1939, Hanyang was the first university to provide engineering studies in Korea, focusing on practical studies for learning and research, and becoming the engine of Korean innovation where students are given the opportunity to foster independent thinking and ground-breaking research as well as cultivate leadership qualities and strength of character. Tangible evidence of Hanyang University's commitment to its purpose is apparent from the ten-year research contract agreed at the turn of the millennium between the university's Automotive Control and Electronics (ACE) Lab, where Sunwoo became a director, and Motorola to provide automotive electronic control system solutions for Korean motor manufacturers and suppliers. In addition, the year 2000 saw a joint research contract with CERT (Center for Environmental Research and Technology) of UCR (University of California-Riverside), one of the world's leading research institutes in the area of automotive emission studies. In 2001, Sunwoo formed a research consortium to perform long-term research into network-based electronic control systems in conjunction with Hyundai/Kia Motors, Hyundai MOBIS, KEFICO and NGV. Such partnerships have helped Sunwoo and his team to concentrate on the development of vehicle system modelling and optimal control algorithms for network-based control systems, a

in Korea and Europe. The DANGUN project, which Sunwoo led, is a prime example. The rationale behind DANGUN was that rather than using an array of varied and expensive sensors, a comparable performance could be achieved through the close cooperation of suppliers of advanced perception sensors, vehicle manufactures and academia. So the DANGUN project set out to develop a Traffic Jam Pilot function with autonomous capabilities using low-cost automotive components. The results have been beneficial technologically, commercially and societally. Not only do the results almost match the State-of-the-Art using sensors that cost 20 to 30% less, but the breakthroughs that have been achieved have allowed the consortium partners to expand both their products and markets. As for the impact on society, these developments will reduce insurance fees as the responsibility for autonomous driving vehicle accidents will lie with manufacturers, data providers and road operators.

A1

"The DANGUN project," Sunwoo adds, "is a good demonstration of the strength of the ITEA framework in which the international collaboration that took place was technologically and culturally enriching, leading to better results. The fact that exploitation has been achieved in such a short timeframe is a testament to this." Such as the vehicle developed by the university's Automotive Control and Electronics Laboratory based on a car manufactured by Hyundai Motor and powered by LG Uplus's 5G network in Seoul, and dubbed the 'A1'. The success of this showed that Korea's autonomous driving technology is advanced enough to compete with global tech giants, even though government regulations still mean that there is a long way to go before autonomous vehicles hit the road in any numbers. More information on this successful DANGUN project can be found on page 22-23 of this Magazine.

bus-load simulator for optimal network design, and Network based HILS (Net-HILS).

Wealth of expertise

Sunwoo points out the uniqueness of the university as a breeding pond for innovation in designing and developing control and electronic systems for next generation vehicles. "We know and understand the importance of software, and software innovation, as well as the growing influence and impact of AI. We have a wealth of expertise and tools under one roof that allows us to be at the forefront of the development of electric vehicles, connectivity and autonomous driving functions that will revolutionise the automotive domain. We are, and will continue to be, prominent in helping vehicle manufacturers meet this major challenge that lies ahead. But, of course, while the university does have access to this treasure chest of expertise, we have to be realistic and realise that we cannot do everything all on our own. Funding and support from our government is essential in this respect. Which is where KIAT comes into the picture. Not only in terms of money, of course, but also in terms of providing suitable vehicles for us to pursue our goals. Like ITEA."

Widespread benefits

ITEA has proved to be an ideal programme for Sunwoo and Hanyang University to exploit the university's resources and to benefit from the knowledge of consortium partners, both

Turning innovation into products

"Not only has the university gained a lot from being involved in a 'global' project, something that is benefiting companies in both Korea and Europe, but I personally have also gained a lot from being involved in the ITEA Community. Having the opportunity, before COVID-19 hit, to get to know many competent and convivial people in the flesh, all open and willing to share their knowledge and opinions. A real creative and social hub. What's more, the ITEA philosophy mirrors our own. And that makes the landscape of such a project both clear and easy to navigate. I am sure that Hanyang University will continue to be part of this ITEA world in the future, even though my own participation will stop – retirement ushers in a new future for me."

It is clear that the role of KIAT and ITEA working in conjunction is vital to Korea's aim of establishing a European and global presence. They combine to create an environment in which exchange of knowledge and experience, technology and markets takes place through project participation, which is essential for turning innovation into products that can have a beneficial impact worldwide.

More information

https://www.hanyang.ac.kr/

Flex4Apps

Deep customer understanding, backed by data

Anybody in the industry knows that monitoring applications is important: you want to know how your apps are performing, both from a technical perspective, such as CPU usage, memory, errors, as well as from a user perspective. The problem today is that for many teams, monitoring and analytics is just one of the many things they need to do, with little technical nor methodological guidance. And collecting, storing, analysing and acting upon data from larger, distributed systems is not that easy.

The forming of the Flex4Apps project at the end of 2016 was paralleled with an increase in containers and serverless paradigms, making the monitoring challenge both harder and easier: harder in the sense that there is even more to monitor because there is more that can go wrong, and easier because the same building blocks allow for a team to build performance monitoring and analytics systems for themselves, at a reasonable cost. The Flex4Apps partners built reference architectures, providing template solutions for dealing with monitoring and analytics, and they developed the methodological support to help teams leverage these. For the reference architecture, they opted to make this available via one-click installs and they have published some of their work in a publicly available GitHub. The methodological insights were bundled in the book "Hyperscale and Microcare, the digital business cookbook" that is in its third print already, with over 1000 books sold to date.

Impacting in and beyond the project
Thanks to improved monitoring and analytics, project partners were able to serve their customers better, yielding improved retention and customer satisfaction as well as, in some cases, even better, sharper pricing of their offerings.

As an example, project partner Unifiedpost (formerly Inventive Designers) has been operating a Flex4Apps inspired platform in production for several years now. While it was initially used as an internal tool to support product management and customer support for one particular product line with both premise-based and cloud services, today the company is using the platform to provide daily business value and insights across several important product lines. This data helped the technical team to find the cause of a very rare race condition occurring in production, while giving sales a detailed view on actual product usage, resulting in better tailored contact with customers. Since its inception, it has required very little upkeep and has kept on churning through the masses of received data with ease. Additionally, in 2021, the success of this project has led directly to the creation of a dedicated data warehouse and machine learning project team of 15 persons, expanding on the original ideas and assisting in the rapid growth of the company.

Cloud computing

Applications

Services

Storage

Project start
November 2016

Project end
October 2019

Project leader
Till Witt, NXP Semiconductors
Germany GmbH

More information
https://www.flex4apps-itea3.org/

Nokia, another project partner, brought down the monthly costs of fixing bugs detected in both early and late development from over 16,000 euros to 1,900 euros – a yearly saving of 180,000 euros. The SaaS tool Survey/Anyplace, meanwhile, has increased their conversion rate by 33% and their activation by 54%.

In terms of improved services, the Belgian SME DataStories is now using Flex4Apps' automated algorithms in 25-30% of their projects. This has allowed them to move into data-driven product management and take on more complex assignments, enabling them to grow from 6 to 18 employees.

Evermind, which has connected Flex4Apps to the home automation platform Eigenheim Manager, has increased sales by 50-100,000 euros per white-label customer. Likewise, Genode's home automation use-case has reduced their trusted computing base by a factor of 20%, making an exhaustive examination of its code base feasible, and has grown their customer base on ARM by 70%. They predict a 200% growth

in licence revenue within two years, with the smart home market expected to be worth 19 billion euros in Germany alone by 2025.

Nick Boucart, Senior Technological Adviser Software and ICT at Sirris and author of the book "Hyperscale and Microcare" states: "We're also proud of the fact that we didn't limit ourselves to impacting only the partners in the project. By publishing our reference architectures, others can benefit from our insights too". This is testified by Arnab Naskar, CEO of the Fintech start-up STOKR: "STOKR is a crowd investment platform powered by Ethereum Blockchain. Through EU-compliant security token offerings (STOs), everyday investors can directly fund innovative start-ups and SMEs in return for a share of future profits. Flex4Apps greatly helped the team to untangle initial complexities related to the technical architecture of the platform. Flex4Apps perfectly understood the need of complex financial platforms like STOKR and provided the right advice."

The open approach of Flex4Apps, combined with the innovative nature of the framework, will

Calendar

15 NOV 2021	**Smart City Business Forum - The road to climate neutral cities** World Trade Center, Barcelona
16-18 NOV 2021	**Smart City Expo World Congress 2021** Fira, Barcelona https://www.smartcityexpo.com/
17-18 NOV 2021	**EUROPEAN BUSINESS SUMMIT 2021** Hybrid event https://ebsummit.eu/
18 NOV 2021	**SWISS INNOVATION FORUM 2021** Congress Center, Basel https://www.swiss-innovation.com
23-24 NOV 2021	**CYBER SECURITY & CLOUD EXPO 2021** RAI, Amsterdam https://cybersecuritycloudexpo.com/europe/
23-25 NOV 2021	**EFECS 2021** Online event https://efecs.eu/
15 FEB 2022	**DEADLINE FPP SUBMISSION ITEA Call 2021**

" Flex4Apps perfectly understood the need of complex financial platforms like STOKR and provided the right advice."

– **Arnab Naskar**
   CEO Fintech startup STOKR

play a crucial role in the digital transition. In the future, a company's most valuable intellectual property will be its deep customer understanding, backed by data, rather than its technology. Companies that take up Flex4Apps stand to gain the most from this insight.

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booth 140

CYBER SECURITY & CLOUD EXPO
EUROPE

23-24 November 2021
RAI, Amsterdam

Sustainab

ility
Insights
from Atos

The most often used definition of sustainability comes from the UN World Commission on Environment and Development: "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Sustainability is becoming increasingly important and urgent because, despite making progress in areas such as clean water, sanitation, clean energy and forest management, the world is still living unsustainably, and biodiversity and climate change have continued to deteriorate.[1]

Technology has a key role to play in addressing the sustainability challenges and in meeting the goals. Therefore, sustainability has and will gain an even more prominent place in ITEA (and the Eureka Clusters) in the near future. Smart energy, for example, is the new key challenge that has recently been added to ITEA's main challenges and it immediately was picked up by the ITEA Community during the Online ITEA PO Days 2021. Several other initiatives are in preparation.

It is important that industry, as a major consumer and polluter but also as a powerful game-changer, takes the lead in making the world more sustainable. Indeed, many companies already started along this path quite some time ago. We are proud that in this ITEA Magazine, Alexandra Knupe, Group Head for Corporate Social Responsibility at Atos, ITEA Board member, shares her views and takes us along their path.

'Raison d'être' of Atos
"At Atos, we are fully aware of our responsibility towards society at large and have been making our contribution, in particular in the fight against climate change for many years. In this respect, we follow the Sustainable Development Goals (SDG) principles. "We started our Corporate Social Responsibility (CSR) journey 10 years ago. Today we lead our sector in Environment, Social and Governance (ESG) relevance. Atos is constantly rated by leading CSR ratings agencies, e.g. in the Dow Jones Sustainability Index in 2020, as one of the best CSR performing companies in its sector.

"Decarbonisation is one of our integral objectives and tied into our 'purpose' (or 'raison d'être') at Atos, which is to help design the future of the information space and enable our customers, employees and members of societies at large to live, work and develop sustainably, in a safe and secure information space. Today it is essential, mandatory even, for every business to commit to non-financial reporting on sustainability (Corporate Social Responsibility) KPIs. Fundamental business decisions are based on sustainable objectives and the reported results of a company – any stakeholder looking to buy, partner, work or invest in Atos bases their decisions on this sustainable performance. Atos' clients also have sustainability goals and, like Atos, are facing increasingly ambitious requirements, especially in the fight against climate change. Atos supports them in achieving these targets and offers consulting and solutions to reduce their carbon footprint with the help of digital technologies.

[1] UN News May 2021: https://news.un.org/en/story/2021/05/1092532

^ Alexandra Knupe
Group Head for Corporate Social Responsibility Atos

> contributing to the planet's fight against climate change using Atos digital competencies;
> contributing to social development through diversity, digital education and digital inclusion;
> contributing to economic development through the data economy, protecting our customers from cyber-criminality and unleashing the potential of data spaces and data sharing;"

"We believe that decarbonisation is the value-adding dimension to digitalisation. In this respect, leveraging on our recent EcoAct acquisition, we have created comprehensive, end-to-end decarbonisation capabilities to enable and accelerate our customers' journeys to net zero."

"For our major contracts, we include binding decarbonisation commitments, so called Decarbonisation Level Agreements (DLA), in a similar way to Service Level Agreements (SLA), by which Atos commits to reduce our customer's carbon footprint and offset at its expense the CO_2 emissions in case of underperformance."

The role of technology and R&D
"Technology is very important in meeting environmental targets and is usually involved when companies take measures to increase their efficiency in order to reduce their carbon footprint. Take the example of the Digital/Virtual Twin in Manufacturing which is a virtual representation that acts as the real-time digital counterpart of a physical object or process, and ultimately increases efficiency. Technology helps improve a range of business processes to become leaner, smarter, faster and thereby reduces companies' carbon footprint. Additionally, we need digital solutions in order to measure this."

"Atos invests in R&D for decarbonisation. Our supercomputers belong to the most energy efficient worldwide (the greenest in Europe), with 70+ patents in this domain. Some ITEA projects have contributed to develop some of them. Furthermore, we do research on supercomputers and data centres powered by green

"It is therefore important that Atos leads by example, and we show this through our ambition to reach 'net zero' by 2028: to reduce the global carbon emissions under our control and influence by 50% by 2025 and to offset all of Atos's residual emissions by 2028."

Challenges, initiatives and added value
"The biggest challenge is the definition of ambitious but achievable targets, the consistent development and management of the necessary programmes and the definition of key performance indicators (KPIs). Ideally, target setting and the definition of KPIs should follow recognised guidelines, such as those proposed by SBTi (Science Based Targets initiative). Standards in environmental management facilitate transparent

reporting and comparability of data. "Ambitious environmental goals also require the participation of all stakeholders in a value chain. Only when suppliers, providers and customers work together on the transparency of environmental data can emissions be significantly reduced."

"Looking forward, Atos is committed to embody sustainability in all areas of its business and especially in regard to its customers, people, environment and the ethical and compliance standards under which it operates. Atos' ambition is to act as a trusted partner for all its stakeholders – now and in the long term. We indeed believe our Environment, Social and Governance commitment creates a significant positive impact for our customers, stakeholders and the society at large:

hydrogen, blockchain technologies for recycling performance or quantum technologies enabling creation of new materials absorbing CO_2 from the atmosphere."

"R&D is fundamental in helping Atos to become more sustainable. We aim to demonstrate, in 2023, the operation of a first full production centre using green hydrogen. Atos will provide a complete end-to-end green datacentre solution by designing and providing the hardware, software and integration services that make it possible to exploit the electricity produced by green hydrogen so that it can be used in datacentres. This includes using the most advanced Artificial Intelligence (AI) technologies to optimise energy consumption."

ITEA innovations for sustainability
In the views shared by Alexandra Knupe, technology is mentioned as an important enabler. For example, Digital/Virtual Twins and Smart engineering can increase efficiency and reduce a company's carbon footprint. Within ITEA, these are important research topics since many years. Software solutions can contribute, among other things, to the optimisation of renewable energy production, the accurate prediction of energy production and consumption, the real-time balance between energy supply and demand and the management of new charging or storage solutions.

Several ITEA projects have already addressed sustainability issues and you can find a few examples at the right side of this page.

ITEA 4 the future
We are very excited to see what comes out of the current ITEA Call where we see an uptake of projects addressing sustainability issues. Moreover, the new initiatives that will start in the near future will also support important innovative solutions that are needed to achieve the proposed sustainability goals and to offer the new generations a good world to live in. All good reasons for the ITEA Community to prepare ambitious research projects targeting sustainable development!

SPEAR
Smart Prognosis of Energy with Allocation of Resources

SPEAR aims to combine real-world production processes with Digital Twins in a simulation environment in order to accurately measure and optimise energy usage. Through its open approach to its optimisation platforms and algorithms, the project aims for uptake by companies of all sizes and a corresponding rise in the use of renewable energy in production plants.

https://itea4.org/project/spear.html

SEAS
Smart Energy Award System

Starting in 2014, the objective of the SEAS project was to enable energy, ICT and automation systems to collaborate at consumption sites, and to introduce dynamic and refined ICT-based solutions to control, monitor and estimate energy consumption. The SEAS revolution is more cost-effective, more green-friendly and more customer focused with streamlined electrical production and consumption...everywhere.

https://itea4.org/project/seas.html

M2MGrids
M2M Internet for dynamic M2M Information Business ecosystem

The project M2MGrids focused on developing enablers to create a dynamic cyber-physical information business ecosystem that connects the physical world with the business processes of companies in real-time. A platform was developed to support an energy flexibility service for balancing the power level and reduction of the peak loads in the distribution grid.

https://itea4.org/project/m2mgrids.html

ENERFICIENCY
User Led Energy Efficiency Management

Back in 2011, the ENERFICIENCY project set about developing a comprehensive, flexible and configurable open software platform able to analyse and respond to user needs in managing energy demands and consumption. This way, the huge investments that were being made on the energy supply side could be matched by improvements on the demand side in the efficiency of energy consumption.

https://itea4.org/project/enerficiency.html

Community Talk with **Anja Fischer**

From a matter of work to a matter of the heart

Anja Fischer has found plenty of meaning in her life. In her journey from shorthand typing to leading an ITEA project to a successful conclusion, a pattern emerges of a person who enriches and is enriched by her environment and the people in it. Anja holds a degree in Business Administration (VWA) and Project management (GPM / IPMA) and is a certified logotherapist, which means that she can help people. Conceived by Viktor Frankl, this concept is based on the premise that the primary motivational force of an individual is to find a meaning in life whatever the circumstances. Quite a good skill to have when leading a project like OPTIMUM. This is a story of opportunity and fulfilment.

A life-changing experience

Reflecting on her path to ITEA, Anja looks back to her first serious job as a team assistant in 1995. While working for a supplier in the automotive industry, her manager was summoned to Asia for a quality issue and Anja remained in Germany to help solve this. Ultimately, it transpired that testing fuel in Germany had a different density to this local fuel in Asia, so validated fuel systems could fail in practice. "That was when I realised for the first time that I have a love and affinity for technical stuff. It was a life-changer," laughs Anja. "But being invited to lead the OPTIMUM project in 2017 was an experience like never before. It has topped every project I've done – and I've done a lot of them."

Enrichment and honour

Starting in 2017, OPTIMUM focused on improved safety, efficiency and usability in smart factories through technologies such as distributed control, indoor localisation and 3D engineering & visualisation. It was also the very first ITEA project for Anja's company Demag Cranes & Components GmbH, which came via long-time collaborator ifak. "When we got the funding approval for OPTIMUM, I was asked to switch positions to fully dedicate myself to it," Anja continues. "It was very exciting as it's a totally different kind of work. Sure, you have interdisciplinary projects within your own organisation. But in ITEA, you have different companies throughout the globe! It's such an enrichment and honour to meet all these highly professional and extremely qualified personalities who contribute to a joint vision. I'm so grateful that I was asked to take up this task."

Room for personal discovery

"In the beginning, I had a lot of support from ifak. Thomas Bangemann, the leader of the German consortium, mentored me. He led the task to build a project consortium agreement, which was the groundwork to openly communicate across company borders and enabled us to work as one team. All of us really loved contributing to this project and it was so nice to enrich the project with technical and research aspects that were not defined in the FPP because they had not been thought of. More things popped up during the project – points of personal interest from universities, for example – and were supported. It was one thing to reach the deliverables and realise what we promised, but there was also room for personal discoveries, and that made the project so rich. OPTIMUM turned from a matter of work to a matter of the heart."

Just do it

This level of commitment has been demonstrated throughout the course of the project, from the presence of OPTIMUM partners at Demag's 200th anniversary in 2019 through to a number of online parties to mitigate the social impact of COVID-19. Anja also organised weekly Corona meetings to share personal concerns and coping strategies, ensuring that potential problems were foreseen before they impacted the project. "We had grown together as an excellently functioning team before COVID-19 hit us, so we were able to overcome it," explains Anja. "And the ITEA Office was extremely responsive and helpful. The reviews and KPIs are always challenging, so it's a big chance to grow. In our third Project progress report (PPR), we got an evaluation that we thought was not good. That was a turning point in the project and we dedicated ourselves to taking these comments seriously. We challenged ourselves to define the KPIs: yes, it's difficult, but just do it! And in the fourth PPR, we got a really good evaluation again."

Common base of values

This hard work has paid off: having secured highly positive results with OPTIMUM, parts of the former consortium are now starting up a new project called InnoSale that aims to improve sales processes using Artificial Intelligence. "OPTIMUM was our first funded research project at Demag and we now have the commitment to continue and invest in research. This would not have happened without ITEA," Anja notes. "As a company, it was a very good experience regarding the organisation and reviewing. Without this project, we would not even have a research department and research factory at Demag in Wetter. My personal experience is that I've learnt so much. There are big role models at ITEA. If you want to improve yourself, you can do that with their support and challenges. The values being shared in the ITEA Community give meaning and sense to work and to life. And if you have a common base of values, you can also grow as a person."

Words of advice

Given her positive experiences, is there anything Anja would have liked to have been done differently? "I had an improvement suggestion," she concedes, "but it was implemented basically immediately, so ITEA is always open to reflecting on their own work and improving themselves as well. What would really help the projects is a kind of alignment with national funding decisions. We hope that partners with a good chance of getting funded at a later point can start at the same time as the others to be a bit more aligned. But this is not in the hands of ITEA, I'm afraid."

Any advice for ITEA then? Anja thinks for a second. "Keep up what you're doing! And thank you for all your support."

CYBER SECURITY
& CLOUD EXPO
EUROPE

Keeping the
focus on customer
orientation

The Cyber Security & Cloud Expo 2020 was moved entirely online due to COVID-19 but we are very pleased to announce that the event returns in full physical format this year. On 23-24 November, ITEA will be present at this expo together with a set of ITEA projects that will showcase the latest Cyber Security solutions in the RAI Amsterdam, the Netherlands. This event provides a perfect opportunity for the project partners to present their results to potential customers and for other attendees to discover the latest trends and developments in the Cyber Security solutions domain.

As customer orientation represents a strong success factor for the impact of R&D projects, ITEA targets customer-oriented events in its event approach. After a fruitful participation in the Smart City Expo World Congress showcasing twelve ITEA projects in 2019, this year ITEA will continue the implemented pathway and participate in the Cyber Security & Cloud Expo 2021 with a set of thematic projects:

> CyberFactory#1
> DEFRAUDify
> PARFAIT
> SCRATCh
> TESTOMAT Project
> XIVT

Cyber Security & Cloud Expo – Explore the security needs of future technology
The Cyber Security & Cloud Expo 2021 will host two days of top-level discussions around Cyber Security and Cloud, and the impact they are having on industries including manufacturing, transport, supply chain, government, legal sectors and financial services, energy, utilities, insurance, healthcare, retail and more. Co-located with the IoT Expo, AI & Big Data Expo, 5G Expo and Blockchain Expo, the exhibition provides a great opportunity for networking, learning and discovering opportunities

Cyber Security & Cloud Expo 2021

across the entire ecosystem. 5,000 attendees are expected to congregate including Chief Information Security Officers, Chief Security Architects, Heads of Information Security, Chief Compliance Officers, Privacy Officers, Data Protection Specialists and many more.

The conference agenda will tackle the real issues CISOs and security professionals are facing today as modern enterprises evolve. We're showcasing the most innovative and important developments in the solutions market, with a focus on collaboration and supporting the security community.

ITEA and the project partners will have a prominent role at this event with a booth (nr. 140) at the main entrance of the exhibition. There will be plenty of opportunity to match challenges and solutions.

Discover Cyber Security innovation
To further strengthen the customer orientation and the exploitation of innovations developed by the industrial partners within the projects, ITEA will again organise 'Innovation Discoveries' at the ITEA booth, which are dedicated guided tours based on a customer's need. The target is:
> to understand the customer's innovation challenges;
> to identify the unique results developed by the attending projects that can contribute to solving these challenges; and
> to help the customer exploit the ITEA innovations presented by the industrial partners who will be present during the event.

Come visit us!
The ITEA booth will be the place to understand the latest innovation trends focused on key challenges in the Cyber

Security and Cloud domain. The current ITEA Cyber Security solutions focus on the following key challenges:
> AI tools
> Fraud analysis and detection
> IoT security
> Optimisation and resilience of the Factories of the Future (FoF)
> Personal Data Protection
> Personal Attacks
> Test Automation
> Variant testing

We look forward to tasting the spirit and energy of a physical event again with visitors, exhibitors and their solutions. We hope to meet you there!

More information
https://itea4.org/cyber-security-cloud-expo-2021.html

DANGUN

Paving the way for the autonomous vehicle revolution

As 90% of traffic-related deaths are due to inattentive driving, the advanced driver-assistance systems market is expected to undergo huge growth, largely due to automated driving (AD), which promises better accessibility and safety. Vehicle manufacturers, however, struggle to enter this market. Customers must be willing to pay for AD features as part of the total vehicle costs, yet current sensors are simply too expensive. Additionally, AD must be improved in low-speed situations. The ITEA project DANGUN, that ran from September 2016 to August 2019 and gathered 8 partners from France and Korea, addressed both of these issues.

DANGUN has focused on the development of a Traffic Jam Assist (TJA) System and a TeleOperation (TO) System. For TJA low-cost perception sensors have created a safe and robust autonomous scheme for speeds of 0 to 50 km/h, which has been validated using the project's own test procedures. Meanwhile, TO allows for remote control of driverless vehicles at speeds below 20 km/h, as well as cellular network communication between the vehicle and teleoperation console. It uses the waypoint navigation concept; the operator indicates to the vehicle the points where it needs to move, the vehicle then generates the path and executes it using its on board sensors. This presents realistic solutions for communication delays, path planning and the decoupling of planning and navigation.

DANGUN's results are beneficial technologically, commercially and societally. DANGUN's innovations have already been integrated into two Renault ZOEs, which were transformed into computer-controlled AD vehicles. At Renault, the TO now is an integral part of the AD solutions. The TJA camera has a lane detection rate of 91% and

Driving) standard has agreed to adopt the TJA test procedure, which is now the sole document with five detailed test cases and passing criteria. These breakthroughs have allowed the consortium partners to expand both their products and markets.

LGE (LG Electronics) will begin producing 600 thousand sets of the AVM system in 2019 and six million sets of the single camera in 2021, resulting in an expected market share increase of 20 to 30%. Valeo is now testing in Korea, anticipating a market of 50 million units per year for both their front camera and corner radar by 2022. Meanwhile, OEMs have used the research platform to test the LGE single camera and AVM system, reducing development time by over 30% and allowing them to enter new markets. Software libraries have been published for exclusive use by the consortium, helping them to maintain their competitive edge while expanding AD. As for societal affects, these developments will reduce insurance fees as the responsibility for AD vehicle accidents will lie with manufacturers, data providers and road operators.

a range of 110 metres, while radar perception systems only have a range accuracy of under 15 centimetres. The Around View Monitor (AVM) system already has a lane detection rate of

driving of this nature. In February 2019, the Hanyang University and LG demonstrated a self-driving car smoothly manoeuvring its way through the busy streets of Seoul on Monday, aided by and broadcasted live on a 5G network. This demo was covered by several large news channels and newspapers in South Korea.

Myoungho Sunwoo, Professor at the Hanyang University and project leader of DANGUN states: "If more Korean organisations embark this kind of global collaboration work through ITEA, I am very much assured that they can use this platform to extend their business to European markets effectively."

DANGUN demonstrates the strength of the ITEA framework: participants reported that the international collaboration was technologically and culturally enriching, leading to better results. The fact that exploitation has been achieved in such a short timeframe is a testament to this. More on this can be read in the interview with Prof. Myoungho Sunwoo which can also be found on page 8-9 of this edition of the ITEA Magazine.

85%, with ongoing tests working to push this to over 95% in the near future. Such results almost match the State-of-the-Art in these areas yet have been achieved using sensors which cost 20 to 30% less.
The TJA test procedure has now been published as a KSAE standard. Additionally, the work item leader of ISO 22737 LSAD (Low Speed Automated

DANGUN has set up its own insurance business in Korea and the US and expects insurance savings of USD 600 billion by 2035. That same year, the first robotaxi businesses are predicted. Many companies are working on this, but DANGUN has laid the foundation by using the TO System to control a driverless vehicle from the other side of the world – the first ever remote

Modelon

Making impact, literally, the next big thing

Hubertus Tummescheit, co-founder of Modelon and since July 2018 Chief Solutions Officer and Managing Director of US operations, explains that while Modelon (headquartered in Lund, Sweden) is still very much an SME with a headcount of just over 100, business operations are quite global, with offices as far afield as the US and Japan.

SME in the spotlight

Hubertus: "I helped found the company along with four other PhDs, all of us with somewhat different engineering backgrounds. Which is one of our core strengths. We are able to combine different disciplines under one roof. The Modelica language, which was the focus of my thesis, is a kind of common denominator you could say. I had a great belief at the time that the technology would really take off, even though I thought it might be a little too early. Given that belief I put the start-up to the other co-founders and, to cut a long story short, we went for it!"

Defying Death Valley
Hubertus and his colleagues developed an open-source library with a couple of user-friendly extras and were fortunate that Daimler was so intrigued that Modelon was asked to support the bigger partner in a project to provide simulation models for the modern-day design of automotive airconditioning systems. "Our initial customers were Daimler, BMW, Volkswagen and Audi along with several tier-one suppliers. That was very successful, and we even won a benchmark against competing companies with new technologies. One of the keys to our success was that we had an open technology, based on the open-standard Modelica. It made a big difference. Up till then, German car manufacturers would ship their vehicles to Death Valley in the US to test the airconditioning in extreme conditions,"
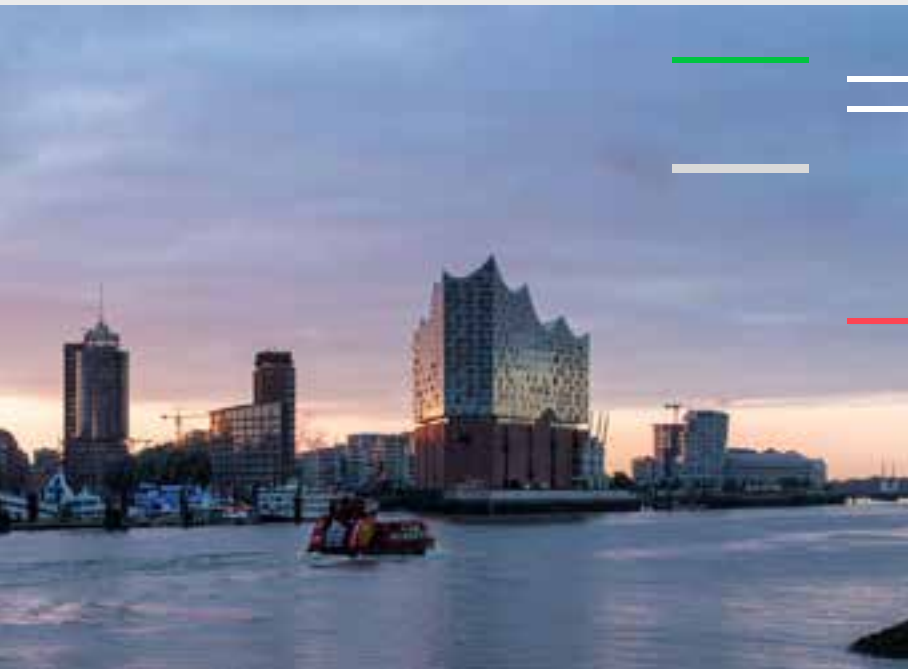
Hubertus explains. "Our model-based design engineering solution significantly reduced this testing effort and, importantly, cost. They still bring over one vehicle for testing for a real-world check, but the design process is all done virtually and makes use of localised testing. Of course, to ensure that your system design is effective, you need properly validated component models. Because this can be done virtually, you achieve real certainty, without having to test the whole system."

Interdisciplinary

Being able to furnish such virtual testing solutions is due, to a large extent, to the uniqueness referred to earlier of Modelon having diverse engineering disciplines in house. "Our mix of competencies is something that sets us apart. In academia it is said that interdisciplinary working is key to breakthroughs and successes. And that is also true for us. Our main customer domains are automotive, aerospace and energy. Our engineers have experience, knowledge and expertise in these domains. If you couple this to our computer science and programming engineers who can build successful software out of that and people with mathematics and numerics backgrounds to ensure that our simulations are always optimal, that makes for a very strong team and is a critical success factor for us."

Making tricky things easy

When it comes to the software, Hubertus is convinced that the innovation is down to this interdisciplinary nature of the work. "I would not say that we are on the latest page of software innovation trends and developments but our ability to bring things together from different perspectives in a new way into a particular product means we are usually the first to do it. So, in that respect, we get the innovation into the product fast. Take our new product, Modelon Impact, as an example. I hope I don't stretch the analogy too far when I cite the Apple iPod. There had been plenty of great music players before the iPod came out, but only the iPod, and the iPhone for that matter, made the leap to millions of consumers. While we're in the B2B

domain, we want to do something similar with our Impact product: enable every simulation engineer to use it – plug and play if you like. We will only be able to achieve the real breakthrough or innovation when we make tricky things so easy to use that everybody has the tool to improve simulation-based design. This is also known as 'democratisation of simulation'. And the role of innovation is essential in making complex things intuitive and simple to use."

Publicly funded projects

Innovations, of course, do not come without collaboration, and Hubertus is very mindful of the role of publicly

Modelon Impact

funded projects and programmes like ITEA in making this possible. "We have been involved in a number of ITEA projects as well as national Swedish and German research projects. These projects have played an important role in the past and will continue to do so in the future for us. ITEA projects have helped to establish many of the open standards and contributed to the development of Modelica, so we have benefited from our involvement in them. Not only have these projects like MODELISAR, OPENPROD and EMPHYSIS proved very valuable in our spearheads of open standards and innovation. I have never seen this kind of support for open standards here in the US – they love standards, don't get me wrong, but there is no public

funding for the development of them. In Europe more collaboration takes place through programmes like ITEA. It really gives us the framework to facilitate the organisation of these projects, especially since it is driven by what the industry needs. This focus fits. And with a growing global landscape, partners are also coming in from around the globe, this also broadens our horizons and business prospects."

Real success story

As a final comment, Hubertus looks back at the 'ride' Modelon has been on. "Earlier this year we did an IPO (initial public offering), which was a big day for us. We've grown organically from five PhDs to over a hundred employees and offices around the world. What brought us to the point where we have become a publicly traded company is a combination of publicly funded projects and our ability to convince our customers to work with us on innovation. I see exciting times ahead, and if our Modelon Impact product takes off as we hope, maybe we will have to move out of the SME category in a few years' time. And I would call that a real success story!"

More information

https://www.modelon.com/

By and for end users

HPA and I²PANEMA strengthen port ecosystems

Questions of sustainability, urbanisation and labour management are placing a strain on EU ports, with an increase in cargo of around 50% predicted by 2030. How can the port ecosystem be simplified in the face of heterogenous software and complex issues of data integration? A solution lies in the I²PANEMA project's vision of smart port networks enabled by the Internet of Things (IoT).
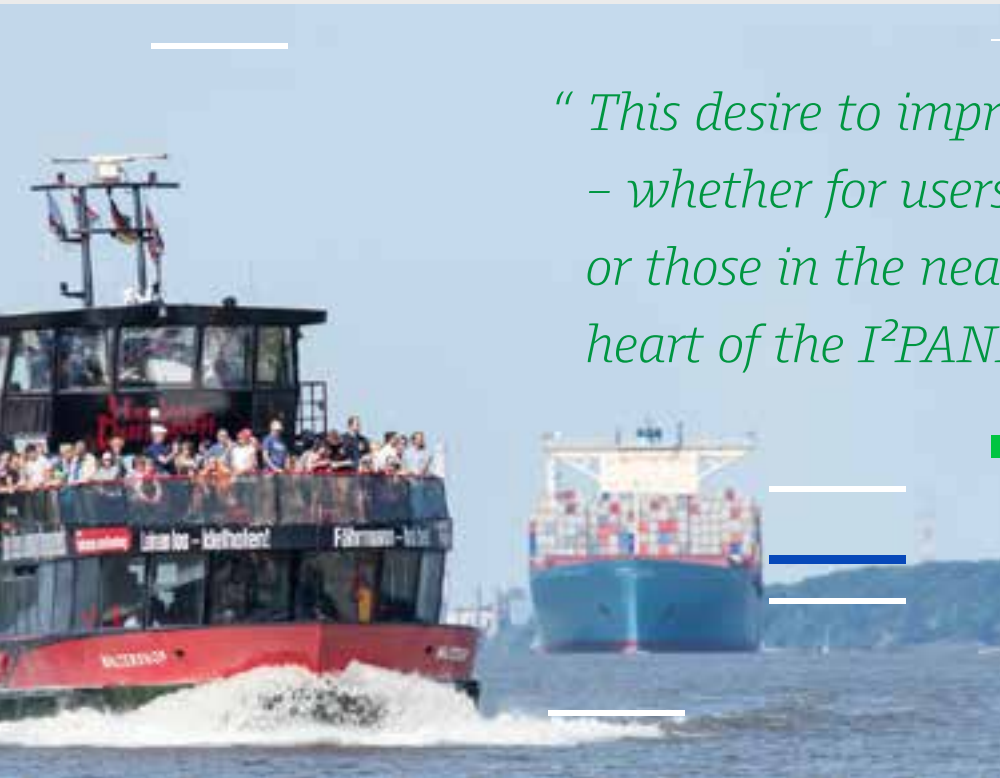
Materna and Fraunhofer IML in which they uncovered a common desire to use sensors and digitalisation to simplify port processes and to develop an IoT reference architecture. As the acronym suggests, I²PANEMA ultimately provided a framework for what they want to achieve: Intelligent, IoT-based Port Artefacts Communication, Administration and Maintenance.

Boosting quality of life

In addition to project management, the HPA is responsible for the definition of requirements, the interface between users and IT for various business scenarios in Hamburg and the realisation of corresponding local demonstrators by partners in Spain, Germany and Turkey. It also holds the distinction of being the end user in the Onshore Power Supply business case, which centres around the transmission of information on when a ship will enter a port and the expected energy demand during its stay. By simplifying onshore power, this business case aims to increase its uptake and thereby improve

Many years in the making

Despite being only midway towards completion, I²PANEMA is already attracting attention: earlier this year, the homePORT innovation campus highlighted the involvement of a key partner in the consortium, the

Port of Hamburg (HPA). Within a pre-existing collaboration with maritime start-up NautilusLog, the HPA had long discussed the idea of conducting a joint project for testing and development. This led to an exchange meeting between the HPA,

" This desire to improve quality of life – whether for users of the port itself or those in the nearby city – is at the heart of the I²PANEMA project."

providers outside of the port industry) with new trends and potential business models, knowledge from other sectors and transformative solutions that involve both stakeholders and end users of ports.

air quality in the port area. This desire to improve quality of life – whether for users of the port itself or those in the nearby city – is at the heart of the I²PANEMA project.

From initial hurdles …

Of course, it hasn't always been plain sailing. Because of complex funding issues of the third-party research project due to the challenges of forming a new federal government in 2017, it was a long way to define the Hamburg business scenarios. The common idea was to optimise media discontinuities in radio, IT and paper processes to enable greater efficiency and employee satisfaction. However, the realisation that ships can only be tracked with a delay then resulted in the need for further consultation and coordination efforts, such as on location querying via radio.

… to 'real-time' reality

With ferry company HADAG having joined the consortium, however, collaboration is in full swing. Over the course of the project, the needs of operational control and ferry captains have been adapted on the basis of NautilusLog's digital logbook, which was installed on HADAG ferries in the form of a Smart Logbook as the

project's first demonstrator. Just as with location, operational data is recorded in real time via sensors in a mobile terminal and is processed by Fraunhofer CML via a Logbook Cloud in order to forecast expected arrival times. A machine-learning algorithm has been developed for this and was trained with millions of data points from the HADAG fleet, helping to support HADAG's end users with a real-time timetable for journey planning.

The end user as a stakeholder

For the HPA, a motivating factor for involvement with ITEA was the chance to co-design systems that will eventually be demanded by end users or that can be applied holistically to create added value, such as an IoT-reference architecture in the industrial/ port context. Perhaps even more importantly, I²PANEMA is a golden opportunity to network with other ports, stakeholders and industry partners in order to inspire and empower port stakeholders both during and after the project. This increased attention on the need for greater interoperability, data exchanges and data merging will serve as a foundation for future solutions and references architectures. In turn, this will help to strengthen the international maritime network (including service

Positive, sustainable impact

As for Hamburg as a whole – and potentially any port city worldwide – the project's main benefit will be the use of IoT/digital processes and applications to create a positive, sustainable impact on the port and the neighbouring urban area. Such solutions always have an impact on the wider city; despite often being considered separately, the ecosystems of ports and cities are mutually dependent and should be considered inseparable. Likewise, the prototyped solutions should never be divorced from I²PANEMA's most important stakeholder: the citizens of the city. The project's sustainability strategy, for instance, aims to increase the use of broader public transport. Real-time passenger information, generated as part of the Smart Ferry business scenario, will hopefully increase customer satisfaction and therefore the use of the ferry service. This forms part of the project's wider efforts against noise, congestion and air pollution around the port, with knock-on benefits throughout society at large.

More information:
https://itea4.org/project/i2panema.html
https://www.homeport.hamburg/
    portfolio/i2panema
https://www.hamburg-port-authority.de

ITEA 4 - And we're off!

First ITEA 4 Call launched in conjuction with the Online ITEA PO Days 2021

2021 marks the start of ITEA 4, the new programme on software innovation under the umbrella of the Eureka Clusters Programme (ECP). The first Call of ITEA 4, ITEA Call 2021 for project proposals, was launched on 13 September in conjunction with the Online ITEA Project Outline (PO) Preparation Days, which were held from 13-16 September.

Unfortunately, like last year, it was not yet possible to get together with the ITEA Community physically, so ITEA took up the challenge again to translate the ambiance of the annual PO Days event to the virtual realm. The second consecutive virtual PO Days combined 4 days of informative sessions on ITEA, its upcoming Call, and the submission process with the most important element of all: discussions on new innovative project ideas. Although most ITEA Community members prefer to meet in person for this purpose, they have proven again to be very agile and active in the virtual format.

Continued engagement in a refined online format
This year around 300 participants from 17 different countries benefited from the refined online features to facilitate the online event and project creation. Besides the online posters, pitch sessions, online workgroup sessions, country information sessions and informative webinars, a new chat and messaging system was introduced to improve the interaction.

As in previous years, Turkey, the Netherlands and Germany represented the top three countries in terms of participation. Thanks to renewed funding opportunities, France saw a substantial increase in registrations again compared to previous years. With 60% returning participants and 40% newcomers, the Online ITEA PO Days 2021 confirm that the ITEA Community keeps growing and attracting new members while retaining the experienced project partners that can guide them.

This year, a record number of Public Authorities was involved in the ITEA PO Days and 9 Country information session were scheduled. The high commitment level of the Public Authorities provided an important early dialogue between them and the project teams supporting alignment with

> **BIMy - An innovation engine for integrated BIM and GIS**
> BIMy learned how Building Information Modelling (BIM) can be used and exploited beyond its normal use, and how the integration of BIM and geographic information systems (GIS) can be improved. It created a shared space for digital representations of construction projects in their environments, enabling collaboration between multiple stakeholders within the Smart City domain and paving the road for new applications.

> **EMPHYSIS – The missing link between digital simulation and embedded software**
> EMPHYSIS delivered the new, global standard for smart industry, "eFMI standard" (embedded Functional Mock-up Interface), for digital model exchange among manufacturers. It accelerates the development of embedded software, with a focus on the automotive industry, thanks to which up to 90% gains can be made in productivity. Another successful outcome is the official approval of a new Modelica Association project to further develop, standardise and promote eFMI.

> **PARTNER - 'One patient, one team' approach for hospitals**
> PARTNER developed an architecture allowing different systems to communicate with each other, to enable the creation of a unified overview of a patient's status (including at home). This assists collaboration within hospitals and reduces costs while offering greater freedom and comfort to patients.

> **VMAP - Enhancing interoperability in virtual engineering workflows**
> VMAP created a vendor-neutral standard for Computer-Aided Engineering data storage and transfer to enhance interoperability in virtual engineering workflows, increasing innovation speed by 50% and reducing setup time for virtual process chains by 40%. The VMAP Standard Community will be established to further disseminate the VMAP Standard and its development.

national priorities and the best possible opportunities for funding that lead to high success rates.

Smart energy and AI strongly represented

As Smart energy has been recently added, ITEA now covers 8 key challenges also including Smart cities, Smart communities, Smart industry, Smart health, Smart mobility, Smart engineering and Safety and Security. With 8 project ideas out of 45 covering Smart energy, this new challenge immediately showed its relevance and the impact of this year's ITEA Customer workshop on this topic. Safety and Security was also addressed in 8 project ideas, while the other ideas were equally divided over the other key challenges.

As for the Technology landscape, AI remains a big topic in ITEA Call 2021, covered by 35 of the 45 ideas, even though a joint Eureka Clusters AI Call was organised earlier this year. Other technologies strongly represented

in this Call are Digital Twin, Natural Language, IoT - Sensors, UI, Robotics and Blockchain.

The final pitches presented at the end of the PO Days were of high quality and currently 32 Project Outlines for ITEA Call 2021 are already being prepared. We are excited to see the submission results at the deadline of 16 November 17:00 CET. On 20 December the consortia will be informed whether they will be invited to submit a Full Project Proposal.

Four major achievements awarded with the ITEA award of Excellence

Apart from initiating new innovative ideas, the Online PO Days 2021 also provided the opportunity to have a look at the great achievements of ITEA projects that were recently completed. On Wednesday 15 September, during the ITEA Awards of Excellence ceremony, ITEA's four most outstanding software innovation projects were celebrated. This year's award winners are:

ITEA congratulates the ITEA Award of Excellence winners for contributing to a better society in their own way!

Online ITEA PO Days in review

Via our event survey several PO Days participants shared their evaluation and suggestions for improvements. With an average score of 3.4 on a 5-point scale (where 3 is good and 4 is very good) the score was bit lower than we were used to, but the event was still well appreciated.

What we have learned from last year's online event is, that it's more difficult to provide networking opportunities when hosting a virtual event. What is missing is the (spontaneous) networking experience and social interaction. Although this year the focus on networking was prioritised by introducing a new chat and messaging system, and although an online event has several advantages too, a high number of participants indicated they really miss the opportunity to interact and meet people face-to-face and would prefer a physical event next year.

ITEA will look to blend the best of both worlds to ensure that next year's event will be optimally valuable for all participants and improve the creation of connections between the large international Community of industry, SMEs, start-ups, academia and customer organisations to build strong consortia.

The ITEA PO Days are made by and for the ITEA Community, and therefore we have invited different Community members to share their experience:

"In June – September 2021, a Canadian SME consortium led by Green Power Labs and MR Control Systems International participated in a well-organised set of events dedicated to ITEA Call 2021 and the Smart energy topic. Required changes in fast-growing IoT environment were defined where the Smart energy approach was seen as a key component. Preparing to and participating in the Online ITEA PO Days 2021, our consortium effectively used advanced online networking tools to address this data management challenge for project idea positioning."

Alexandre Pavlovski
President & CEO Green Power Labs

"The ITEA PO Days were again interesting to see consortia being born. As Public Authority we can inform them about relevant companies to join them. Also the speeches of the other Public Authorities are sometimes inspiring for addressing issues we all face. Let's hope we can see a lot of companies participating in the next Call. Next to that, the PO days are a good opportunity to learn new people with specific expertise all around Europe."

Fredrik De Vusser
VLAIO (Belgian NCP for ITEA)

"The ITEA PO Days confirm the potential of collaborative research to address important challenges such as the extension of AI methods, the software cyber security improvements or solutions for energy systems. The outcomes of this event pave the way to ambitious ITEA 4 projects."

Jean-François Lavignon
ITEA Vice-chairman

We are hopeful to be able to come together in person next year. We know the Community is eager to meet again, face-to-face, benefiting from the rich and efficient networking opportunities that the ITEA PO Days bring and we really look forward to come together with the ITEA Community again too!

More information
https://itea4.org/onlinepodays2021/index.html

CyberFactory#1 partner GOHM develops new Wi-Fi Fingerprint Recognition Algorithm

ITEA news

CyberFactory#1 (CF#1) aims at designing, developing, integrating and demonstrating a set of key enabling capabilities to foster optimisation and resilience of the Factory of the Future. To increase resilience the project partners work on a cluster of technology developments enabling secure and smart manufacturing systems, in particular against cyberthreats.

To this end project partner GOHM Electronics is applying RF Fingerprinting (radio frequency fingerprinting) technology to increase the security in wireless communication. Especially autonomous moving manufacturing machines (i.e. guided vehicles or robots) and low-end sensors in manufacturing sites are using Wi-Fi as their primary communication method. Even if the security keys are encrypted and there are several other security mechanisms to avoid non-legitimate devices in the Wi-Fi network, the Wi-Fi communication system suffers impersonation attacks. The security keys can be easily obtained from low-end sensor systems which are using SD cards as their primary storage devices. The MAC addresses (media access control addresses) can also be copied. Existing Wi-Fi security systems cannot differentiate the attacker from a legitimate sensor. This situation puts the whole system's integrity and communication security at risk. By using machine learning-based RF Fingerprinting technology, the attacker can be detected even if similar packets are transmitted over the Wi-Fi communication channel, thereby contributing to a more resilient and secure Factory of the Future.

More information
https://itea4.org/project/cyberfactory-1.html

ITEA news

IMPACT project optimises clinical workflows

Healthcare faces many challenges like improving patient outcome and working more cost dffectively, while the demand is growing, staff capacity is declining and new clinical and technological developments succeed each other quickly. A paradigm shift is needed towards true value-based and patient-centric healthcare. The IMPACT project has addressed this challenge by leveraging the power of data and building on preceding award-winning ITEA projects MEDIATE and BENEFIT to move towards intelligence-based healthcare. Focusing on personalised diagnosis & treatment planning, minimally-invasive & robotic-assisted surgery, workflow optimisation and data intelligence, IMPACT has made healthcare more efficient, accurate and cost-effective.

Faster and more accurate procedures
With data being the instrumental enabler for healthcare innovations, seamless integration of data flows has been realised by a medical data lake solution and by the automation of labour-intensive data processing steps. Personalised diagnosis and treatment has become much faster, with a procedure time reduction of 30% for specific cardiac procedures thanks to pre-interventional simulations. Even more impressive time reductions, ranging from 30-80%, have been realised in radiation therapy workflow for brain oncology. Procedures have not only become faster, but also more accurate thanks to automatic Deep Learning-based image segmentation in for instance liver oncology, providing the physician with improved confidence in the treatment plan and outcome.

Robotic-assisted surgery and operational excellence
Even though robotic-assisted surgery is still in its infancy, the IMPACT project has demonstrated clinically relevant innovations for real-time motion compensated needle placement and the integration of 3D image models for intra-operative use in the Da Vinci robot. In addition to clinically focused innovations, IMPACT has also shown how operational excellence in a Cathlab environment can be optimised: intuitive system control is offered using Augmented Reality and essential data about workflow steps is automatically captured and displayed on an intuitive dashboard. Moreover, real-time procedure progress in other Cathlabs is automatically incorporated to suggest an optimised clinical workflow scheduling.

Next challenges addressed in follow-up project ASSIST
While the project has resulted in many innovations and exploitable results, there are still many challenges that need further investigation, like system automation, 3D visualisation and synthetic data generation for the development of AI-based applications. The recently approved ITEA project ASSIST will address these challenges to simplify the clinical workflow even further.

More information
https://itea4.org/project/impact.html

Trace files for ML-based IoT intrusion detection

ITEA news

The ITEA project STACK (Smart, Attack-resistant IoT Networks) will enable Internet of Things (IoT) applications with a high quality of service even under non-benign circumstances. Goals include more robust IoT communication, attack detection/mitigation through performance and interference monitoring and algorithms leveraging a tight integration with a smart edge.

Lack of reliability and security of IoT networks

Many IoT networks lack guaranteed reliability, latency and security – a concern given the rise in cyberattacks. IoT mesh networks of embedded devices are especially vulnerable due to their wireless communication and relatively low output power; even so, they increasingly influence our safety and livelihood in domains like autonomous driving and healthcare. As resource constraints prevent devices from running sophisticated defences, the challenge is to ensure that IoT networks can maintain functionality in difficult situations such as attacks and cross-technology interference.

Intrusion detection systems (IDS) play an integral part in the defence against attacks. To be effective in various attack scenarios, IDS typically rely on machine learning-based algorithms. These algorithms require a lot of training data. In many domains, such data traces exist. In the area of low-power IoT mesh networks such data traces do not exist.

Multi-Trace

To this end, Multi-Trace has been designed in the STACK project. Multi-Trace extends Cooja, a widely used simulation tool for IoT mesh networks to generate data traces. These traces support the training of machine-learning algorithms for intrusion detection in low-power, resource-limited IoT networks. Multi-Trace's trace generation facility includes logs at different levels. In addition, there are scripts to define simulation scenarios. Since all logs stem from the same simulation, they inherently share a global timestamp. This enables users to merge and combine different logs according to their needs and finally get data to train the machine learning algorithms to defend against attacks on IoT networks. Multi-Trace is available at STACK's github:
https://github.com/STACK-ITEA-Project

More information
https://itea4.org/project/stack.html

eureka

Brit Helle joins Eureka as Head of Secretariat

Will the arrival of Norwegian Brit Helle as Head of the Eureka Secretariat in Brussels herald a second renaissance for the world's biggest public network for R&D and innovation?

Helle, who has already took up her role in September, says that with the backing of the Portuguese Eureka Chairmanship, she will listen, learn and support the drive and ambition of Eureka.

"I will continue Eureka's work to provide the optimum palette of programmes that best support innovation-hungry organisations and continue the implementation of Eureka's global outreach strategy," she says.

Helle, formerly Director of the Internal Market Division of the European Free Trade Association (EFTA), announced her appointment as Head of the Eureka Secretariat in June. Many see her arrival as a smart and strategic move by Eureka's Executive Board; Helle is Eureka's first Scandinavian and first female Head of Secretariat.

Source: https://eurekanetwork.org/

Eureka Clusters Call dates

CELTIC-NEXT	22 Nov 2021	Deadline for the CELTIC Autumn Call	https://www.celticnext.eu/
ITEA4	15 Feb 2022	Deadline Full Project Proposal ITEA Call 2021	https://itea4.org/
smart	24 Jan 2022	Deadline Project Outline SMART Call 5	https://www.smarteureka.com/
Xecs	25 Feb 2022	Deadline Project Outline 2022 Xecs Call	https://eureka-xecs.com/

Colophon

ITEA4