ITEA Annual Report

2017 Full year report

1 January - 31 December 2017

ITEA3

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About ITEA

ITEA is the EUREKA Cluster programme supporting innovative, industry-driven, pre-competitive R&D projects in the area of Software-intensive Systems & Services, key drivers of innovation in Europe's most competitive industries, such as automotive, communications, healthcare and aerospace.

ITEA stimulates projects in an open community of large industrial players, SMEs, universities, research institutes and user organisations. As ITEA is a EUREKA Cluster, the community is founded in Europe based on the EUREKA principles and is open to participants worldwide.

Our vision

There is a wide consensus that change and disruption will be permanent features in society from now until 2030, with the way of living and doing business becoming fundamentally different from what it is today. In 2030 the world population will reach the magic number of 8 billion people, only 23% of whom will live in Europe and the Americas, so it is important to adopt a global view. In positive terms, this development should be seen as '8 billion opportunities'.

Digital Technology has a major role to play in mastering the changes. And it is within this domain of Digital Technology that ITEA is addressing innovation in Software, IT Services, Internal IT and Embedded Software, collectively denoted as 'Software innovation'. For Europe, an industry strong in Software Innovation is a prerequisite for maintaining global competitiveness and in securing high-value jobs in Digital Technology and in other, more traditional industries that are dependent on Digital Technology.

Our mission

ITEA's mission is to be the recognised partner for European industry, optimising support for companies and R&D actors active in ITEA projects in the area of Software-intensive Systems & Services, thus making best use of funding made available by the ITEA supporting countries.

Ambitions

- Innovation
- Business impact
- Fast exploitation
- Seizing the high ground
  To ensure that European industry continues to be at the leading edge worldwide
- Happiness
  For the community and the added-value of project results to improve the lives of end-users

ITEA is a not-for-profit association. The operational costs for running the ITEA Programmes are covered through an annual contribution by the publicly funded participants of the Programmes. Every year, the budget and the project contribution rules are fixed by the ITEA Board. An annual financial report is created by the ITEA Office, which includes an independent audit statement.

ITEA Office has a Quality Management System in place to ensure adaptability to the ongoing changes in the industry environment. This Quality Management System has been ISO9001:2015 certified. To monitor the quality of the ICT system, an external ICT audit is performed every two years.

Message from our Chairwoman

Nowadays, it is almost impossible for any single company, or even a single country, to gather all the valuable information it needs to create an innovative and a disruptive product. And if the subject is Digital Transition, it definitely needs many vertical knowledge bases from different countries, companies and people. As ITEA is the EUREKA Cluster for the digital transition, ITEA supports companies and innovators:
- to develop new partnerships
- to access new customers and new markets
- to develop new products and technologies
in international, collaborative and industry-driven R&D projects with a focus on results.

Digital Transition is not a one-step process. It has many dimensions and layers whereby development must be continuous The more that digitisation is enabled, the more penetrative the transition becomes and the need for more solutions increases. To achieve this continuous process in a smooth way, a fertile environment where there are many valuable ideas, and knowledgeable people that are eager to share, to inspire and be inspired by each other. And this is exactly what we experience in the ITEA Innovation Community.

Open Innovation is enabled via collaboration with a diversity of people and companies, such as industry leaders, SMEs, start-ups and Venture Capitalists, in a trusted environment. The process of innovation is becoming closer and closer to the end-users or to our customers. Therefore, both the existing and prospective customers of project partners take an increasingly important role in ITEA projects. And innovation still needs a deep knowledge base from academia and research departments of companies. Once an Open Innovation environment is created, it is only a matter of time before we witness a disruptive product in the market.

In ITEA, creating impact from R&D projects is the main ambition: impact on business, on the market, on society. Therefore, in 2017, we started to gather a digital and open book, the "ITEA Impact stream". Each Impact story is prepared with a short list of impact highlights resulting from an ITEA project. Tagged by country, by ITEA challenge, and by type of company, it enables you to create a dynamic book based on your personal interests.

ITEA is the place for Open Innovation with a vibrant ITEA Innovation Community to create impact via R&D projects with transnational collaboration.

Outlook

ITEA will continue to contribute to the Innovation Ecosystem by expanding its territory with new countries and companies to ensure its Community is served by the best performance and its ambitious targets are achieved. In 2018, we will:

- boost the ITEA budget with the support of existing countries and by extending to new countries
- maintain our focus on reducing the time from idea to project start
- promote the impact of ITEA projects via a digital and open book "ITEA Impact stream"

Moreover, in 2018, we will celebrate the 20 Years of ITEA as young, dynamic and innovative R&D programme. With happiness.

Have a good read!

Sincerely yours,

Zeynep Sarılar, ITEA Chairwoman

1 High level achievements and improvement priorities

1.1 Achievements 2017

1.1.1. Improvement priorities and results 2017

For almost 20 years now, ITEA has been the international R&D programme for software innovation. In a world of continuous change, ITEA has also changed over time. To guide this change in 2017, several improvement actions were defined. The current status of each action is given below.

1.1.1.1. Promotion of ITEA impact and successes

Impact is one of the main ambitions in ITEA. Impact on business, on the market, on society. Many ITEA projects have achieved incredible results and most of these successes could not have been achieved without the (financial) support of the national Public Authorities. In return, ITEA is now gathering project impact stories in the ITEA Impact stream. More information can be found in section 4.3.2. Impact stream. Just to mention a few highlight examples:

- *By the end of 2016, over 1000 operating rooms within Europe had installed Barco's Nexxis platform - a networked digital Operating Room - which is based on MEDIATE results. At the end of 2017 this has increased to over 1600 installations and accelerated adoption is expected over the next few years.*
  - result from the MEDIATE project finished in December 2013

- *ADAX is known to have directly contributed to €7 m of the €33 m turnover recorded by Cassidian Cybersecurity SAS in 2014 and led to the recruitment of 6 additional engineers. By 2016, all developments from ADAX had been embedded in the Cymerius® commercial version.*
  - result from the ADAX project finished in April 2015

During the ITEA PO Days in September 2017, a first online version of the Impact stream was released with 3 impact stories. At the end of 2017, 9 impact stories had been collected and published online: https://itea3.org/impact-stream.html.

In addition to the Impact stream, ITEA focused on further strengthening the visibility and communication of ITEA successes through publications in (national) newspapers. In 2017, ITEA had several publications in (national) newspapers e.g. ITEA & EUREKA Clusters were mentioned in the Spanish newspaper El Mundo and the Digital Innovation Forum 2017 (DIF 2017), co-organised by ITEA & ARTEMIS-IA, was mentioned in the Dutch Algemeen Dagblad and some regional newspapers.

1.1.1.2. Approval of the deadline on validity of the ITEA label

In 2017, the reduction of the time from idea to project start remained a key priority. To improve this by avoiding delays in funding applications and funding decisions, the ITEA Board and Public Authorities Directors Committee (DC) approved a label validity deadline of 10 months from labelling unless the project is running. The implementation of this measure is planned for February 2018.

1.1.1.3. Extension in new countries

Another improvement action was to explore the possibilities to extend the ITEA Programme in new countries. Apart from South-Korea, Canada, South Africa and Chile, discussions at the EUREKA level are currently taking place with Japan and with countries in South / Middle America. At the end of 2017, the ITEA Board was requested to suggest specific companies and institutions in Japan or in other countries with whom it would like to cooperate. This improvement action will be continued in 2018.

1.1.1.4. Increase income and reduce costs for 2017

Several actions were taken over the past few years to increase the income and reduce costs. In 2017 the main actions were the changes in contribution fee for the project partners and in the participation fee for ITEA events. Furthermore, preparations are under way to change

how the ITEA contribution fee is charged from 2018, based on the national funding contracts. This will avoid the need for a lot of retrospective correction.

1.1.1.5. Increase the target group participation

Promotion of ITEA with the current and new target groups and countries is part of the regular ITEA processes. In addition, ITEA takes several initiatives to further boost its attractiveness:

- in 2015 we introduced international customer and end-user workshops, involving all the players along the value chain and thereby improving the impact of ITEA projects;
- in 2016 we introduced a Digital Transition Masterclass in order to widen the exploitation of project results, also to companies who have traditionally not been so involved in the Digital Transition yet, but for whom software innovation may also create tremendous opportunities; and
- in 2017, ITEA launched a new programme element at DIF 2017 to further strengthen its relevance for start-ups and SMEs, which represent an increasing part of the ITEA project partners. The DIF 2017 explicitly focused on supporting innovative SMEs and start-ups, to access key industry representatives and Venture Capitalists by organising the innovation sessions and the innovation market addressing four emerging challenges: Smart Energy, Smart Health, Smart Manufacturing and Smart Mobility. This focus was highly valued by the participants. A detailed report can be found in section 4.1 Events.

1.1.2. High-level KPIs

In 2017, ITEA achieved the following scores for the high-level KPIs:

Strategic Leadership	Target 2017	Realised 2017
Forecast funded Call size ITEA 3 Call 3	≥110 M€	105 M€
Time from idea to project start of ITEA 3 Call 3	14 months	15 months
Hit rate ITEA 3 Call 2	80%	70%
Average quality of events (DIF, PO Days and Customer workshop)	>3.6	3.7

Table 1: Results ITEA high-level KPIs 2017

1.2. Improvement priorities 2018

In 2017, after a few years of negative developments in the funded Call sizes, ITEA witnessed a slight resurgence, reflecting the impact of the actions taken by all involved parties. More information on this can be found in section 3.1 ITEA Programme size. To continue this positive trend, the following improvement actions are defined for 2018:

1.2.1. Maintain/increase the budget in participating countries

A recent survey shows that 100% of the 155 responding ITEA project partners feel that access to funding is a key value of ITEA and the great majority finds that ITEA offers good funding opportunities for them. As the projects are the building blocks of ITEA, it is essential to maintain or even increase the budget in participating countries. For this, several improvement actions are planned again in 2018.

1.2.1.1. Expand the ITEA Programme in new countries

The successful and increasing Canadian participation is a great example of how ITEA can act as a "Global Village". This year ITEA, partly in cooperation with the EUREKA organisation, will continue to focus on expansion of the ITEA Programme in new countries.

1.2.1.2. Extend the Impact stream

ITEA will continue to collect new impact stories and add them to the Impact stream as it was very well received by the Public Authorities and involved ITEA project partners. For 2018, the goal is to gather 20 impact stories in total, meaning 11 new stories. More information can be found in section 4.3.2. Impact stream.

1.2.1.3. Strengthen press visibility in cooperation with partners

In 2018, ITEA will try to create more visibility for the impact of ITEA at the higher managerial levels of companies and higher political levels of countries by strengthening the press approach. For that reason ITEA Communications will organise visits to Communication departments of several Community organisations and the EUREKA Secretariat to combine forces, to share best practices and to create a mutual understanding of each other's activities and collaboration opportunities. The project partners will be involved as well and requested to share their dissemination activities that ITEA can further spread via its different means and channels of communication.

1.2.2. Maintain focus on reducing the time from idea to project start

For all three running ITEA 3 Calls, the time from project idea to project start was 15 months, representing a major improvement compared to the 24 and 22 months of ITEA 2 Call 6 and 7 but not yet achieving the ITEA ambition of 10 months. One of the main difficulties in setting up successful ITEA projects is still the time it takes to get to funding decisions for labelled projects, and also the lack of synchronisation between the funding decisions in all participating countries. In 2017 it was decided to address this by setting a deadline on the validity of the ITEA label: if a project has not started within 10 months after labelling, the label will be withdrawn. Also, partners in a project that is already running but for which no positive funding decision has been made and that do not intend to participate on a "self-funded" basis will be dropped from the project. The decisions to withdraw the label for a project or to drop a participant is not an automatic decision; exceptions can be made on a case-by-case basis by the ITEA management bodies. The implementation of these measures in 2018 is an important improvement action.

1.2.3. Further improve the customer orientation

For a few years, ITEA has a clear customer orientation, through e.g. the organisation of the ITEA International customer and end-user workshops and the Digital Transition Masterclass. Furthermore, the Digital Innovation Forum 2017 opened up to participants outside the ITEA and ARTEMIS-IA R&D Communities, to give the projects at the exhibition the opportunity to showcase their results to and network with future customers and/or investors. To further improve the customer orientation, ITEA explores the possibilities to partake in large commercial fairs, visited by huge numbers of potential customers like GSMA, CEBIT, etc, thereby enabling ITEA project partners to better commercialise their results.

1.2.4. Expressing the Unique Selling Propositions of ITEA within the European Innovation Landscape

The overall innovation landscape in Europe is continuously changing. The European Framework programme is being renewed (FP9) and within EUREKA there are changes as well; e.g. new Clusters, GlobalStars, a next EuroStars programme, E!nnovest. The position of ITEA in this context has to be expressed based on the Unique Selling Propositions of ITEA. This is being addressed internally in the ITEA Office and expressed in two working groups at the EUREKA level in which ITEA plays an active role, also on behalf of the other EUREKA Clusters.

1.2.5. Continue to assure operational quality

In addition to the other, mostly high-level, improvement actions, ITEA will continue to assure the operational quality for its participants, by e.g.:
- simplifying the project contribution invoicing based on national contract data to avoid retrospective corrections;
- taking care of the new regulations on privacy and security (e.g. GDPR); and
- creating a project action list to have a better follow-up of the mandatory and recommended (improvement) actions resulting from evaluations and reviews.

2 Strategic activities on a European level

2.1 Positioning of ITEA in Europe

EUREKA is a publicly-funded, intergovernmental network, involving over 40 countries. EUREKA's aim is to enhance European competitiveness by fostering innovation-driven entrepreneurship in Europe, between small and large industry, research institutes and universities. As a EUREKA Cluster programme, ITEA was initiated between major industrial companies and a number of EUREKA countries to support business-driven innovation in Software-intensive Systems and Services. Clusters are truly industrially driven with Cluster projects defined bottom-up by industry, large companies as well as SMEs, and financially supported by the national governments. Clusters use industry resources to evaluate and support collaborative projects with full involvement of the national public authorities. They remain a dominant component in the EUREKA portfolio, representing around ²/₃ of the innovation supported by EUREKA instruments.

Complementarity in the European R&D&I Funding Landscape
In many countries, there are national programmes, helping to establish critical mass and differentiation for developing organisations, and supporting national champions that meet the strategic plan of the country in the global economy. At the European level, there are strategic programmes based on agreed priorities that provide support for early collaborative activities, as in H2020, and for large technology initiatives, as in the ECSEL-JU. Next to these initiatives, the Clusters have a unique position as recently confirmed during the Germany Industry Hearing that took place in July 2017 between industry representatives and the German Public Authorities of the Federal Ministry of Research and Education (BMBF) and the federal Ministry of Economic Affairs and Energy (BMWi).

Complementarity in the European R&D&I Funding Landscape

As concluded during the meeting, the EUREKA Clusters are an indispensable and agile tool in European industrial development thanks to e.g. the high flexibility in participation beyond EU countries and in the integration of new partners. Another strong asset of the Clusters is the market relevance since the industry experts evaluate the projects. The individual advice and constructive exchange during the project set-up and evaluation lead to high efficiency, good-quality project applications, less effort and cost investment for all players involved and higher funding prospects. Thanks to the bottom-up approach, Clusters facilitate the realisation of national priorities by direct dialogue with national public authorities and companies can realise long-term and continuous work on the topics that are important to them.

2.2. Cooperation with ARTEMIS-IA

ARTEMIS-IA is one of the private partners in the ECSEL-JU programme, focusing on embedded systems and cyber-physical systems. Consequently there is some overlap between the ITEA and the ARTEMIS-IA Communities. The cooperation between ITEA and ARTEMIS-IA is organised in the so-called ARTEMIS-IA ITEA Cooperation Committee (AICC).

Beginning in 2008, ITEA and ARTEMIS-IA organised a Co-summit as their main event to share the latest developments in market-oriented software innovation with representatives from industry, research and public authorities. In 2017, the Digital Innovation Forum (DIF), which evolved from the Co-summit, was co-organised for the first time. A detailed report can be found in section 4.1 Events.

In addition to the common events, there are several other cooperation activities. For example, ITEA and ARTEMIS-IA / ECSEL were both invited to take part in the conference on Software for competitiveness which was jointly organised by Vinnova and the Swedish Foundation for Strategic Research, and ITEA was present at the European Forum for Electronic Components and Systems (EFECS 2017) that took place from 4-5 December in Brussels. This event was co-organised by AENEAS, ARTEMIS-IA, EPoSS, ECSEL Joint Undertaking and the European Commission.

2.3. EUREKA activities

ITEA is the EUREKA Cluster on Software Innovation. In total there are 7 EUREKA Clusters: apart from ITEA, there are Celtic-Plus (telecommunications), EURIPIDES² (smart systems), EUROGIA2020 (energy), MetallurgyEurope (advanced materials and manufacturing), PENTA (nano-electronics) and SMART (advanced manufacturing).

Representation at the EUREKA level and cooperation between the Clusters are essential so therefore Intercluster meetings are organised every two months. In the EUREKA Chairmanship year 2016-2017 (Spain) the PENTA Cluster acted as Intercluster spokesperson. Since June 2017, ITEA has taken over this role during the 2017-2018 Chairmanship of Finland.

EUREKA Clusters offer the opportunity for funding transnational R&D consortia in a fast and efficient way and they offer project support to ensure relevance and quality. In May 2017, a EUREKA Network and Cluster Projects impact report was published. The study, among other things, showed that one year after the end of projects, project participants showed an additional annual turnover growth of 13% for Cluster projects compared to non-participating companies. The full report can be downloaded from: https://itea3.org/news/the-impact-of-participation-in-eureka-cluster-projects.html.

To strengthen their position and promote their results, the Clusters participated together in the following activities in 2017:

- **EUREKA Innovation Week (15-19 May)**
  During the EUREKA Innovation Week that took place from 15-19 May in Barcelona, the Clusters participated together in a Cluster information session including a short introduction followed by a panel session and an interactive game, all explaining the importance, complementarity and uniqueness of the Clusters. After the break, there was a dedicated session highlighting the importance of SMEs in Clusters and in EUREKA.

  Covering the event, the Spanish newspaper El Mundo featured the Clusters in a dedicated article "Clusters erase borders". This article in Spanish can be found on: https://itea3.org/press/los-clusteres-borran-fronteras.html.

- **EUREKA HLG meeting (27-30 June)**
  Ministers, secretaries of state and other high-level representatives of EUREKA member and associate countries met in Madrid for the Ministerial Conference to discuss new steps forward for EUREKA and reinforce its key position in the European innovation space.

- **Germany Industry Hearing (6 July)**
  On 6 July, ITEA Office Director Fopke Klok, Peter Hermann (Celtic-Plus) and Jochen Langheim (EURIPIDES²) had a very constructive and fruitful meeting in Bonn with the German BMBF, the BMWi, the project managing organisation DLR and about 20 industrial representatives, from e.g. Siemens, Robert Bosch, TWT and Nokia Bell Labs. More information about this meeting, can be found in section 2.1.

- **Letter of support from industry - France (20 October)**
  On 20 October, a letter stressing the importance of EUREKA Clusters was sent to the French Minister for Economic Affairs, Bruno Le Maire with a copy to Pascal Faure and Mathieu Weill of DGE. The letter was signed by 33 key players from French industry and SMEs.

- **Preparations EUREKA Innovation Days 2018**
  On 22-24 May 2018, the Finnish Chair of EUREKA will organise the EUREKA Innovation Days in Helsinki, with the support of the EUREKA Clusters. The dedicated Clusters sessions, as the ITEA Event 2018 will be part of the EUREKA Innovation Days and will take place on 24 May. A full-scale exhibition will be showcased throughout the complete event.

3 Calls overview

3.1. ITEA Programme size

The ITEA 2 Programme is now almost coming to an end with already 103 projects completed and only 6 projects still running, which are all planned to finish in 2018. The total size of the ITEA 2 Programme is now estimated at 12,580 PY and €1,305 m.

In 2017, after a few years of negative developments in the funded Call sizes, ITEA witnessed a slight increase again, showing the impact of the actions taken of all involved parties. ITEA 3 Call 2 has developed well towards €120 m, a real improvement compared to Call 1, which had achieved a size of €103 m.

More details about Call statistics per country and per year can be found in Annex A.
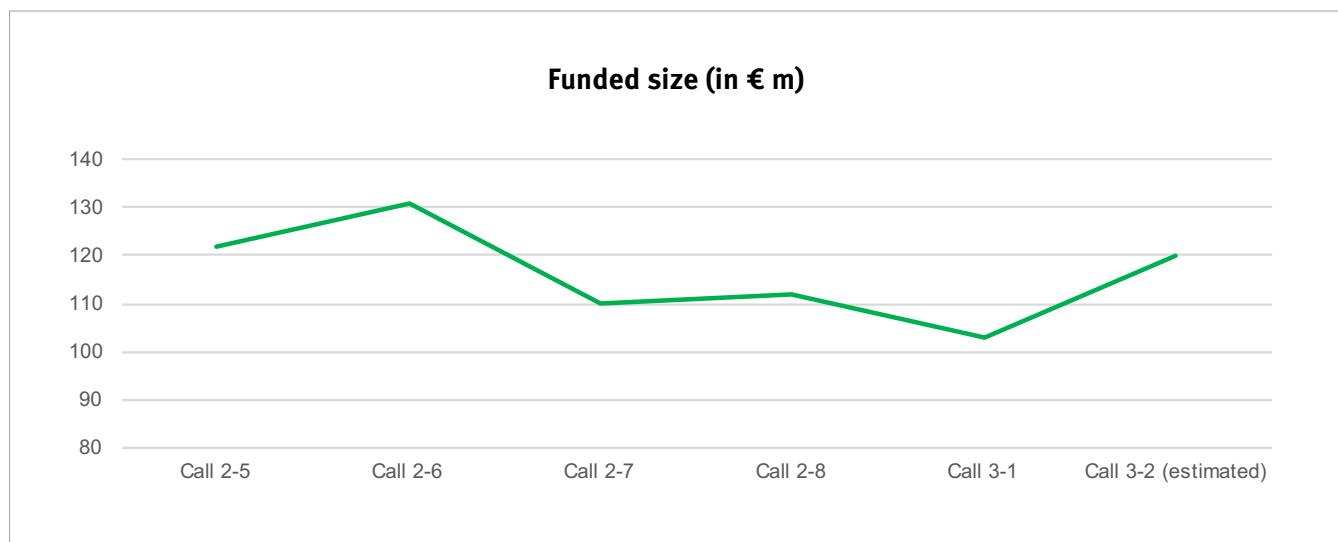
Funded size (in € m)

Figure 1: ITEA (estimated) funded Call size in million euros.

3.2. ITEA Calls progress

In the following graph, the progress of the ITEA Calls is represented by several hit rates. These hit rates show respectively the percentage of number of projects, effort and costs actually accomplished or actually running in the ITEA Programme compared to the number of projects, effort and costs initially labelled.

This figure shows a major decrease, especially in effort and costs, for ITEA 2 Call 5 to ITEA 2 Call 8. Several projects were cancelled and many of the projects that were accomplished decreased drastically in size during their lifetime. From ITEA 3, the situation has improved thanks to the actions taken by the ITEA bodies and Public Authorities.

The grey areas represent the projects that are still waiting and therefore can still influence the hit rates. The ITEA 3 Calls are also still subject to some (minor) changes, as change requests are also possible for ongoing projects. However, ITEA 3 Call 1 and 2 are rather stable now; only one project did not yet submit a change request and most funding decisions are known.
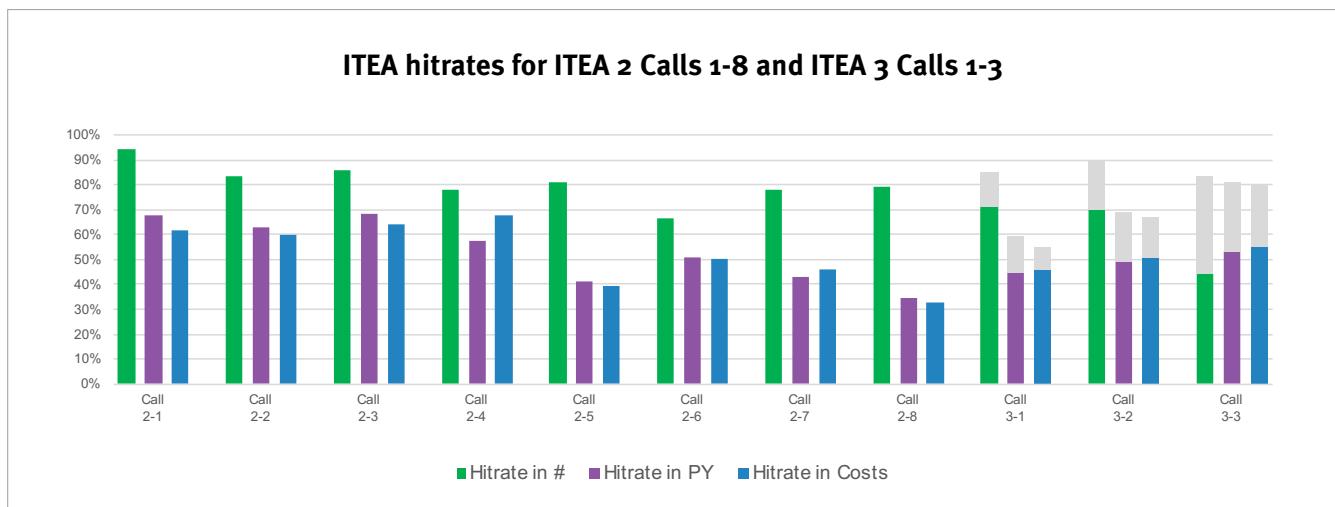
Figure 2: ITEA hit rates for ITEA 2 Call 1-8 and ITEA 3 Calls 1-3 as of 31 December 2017. Figures based on latest FPP.

A quick start of a project can have a positive impact on maintaining its original size as partners remain involved and the topic remains relevant. As previously indicated, the time from project idea to project start has been a high-level KPI in ITEA for a few years now and the actions taken have had a positive effect.

As the result of this KPI has not improved over the last three Calls, the deadline of the ITEA label validity has been implemented. More information on this can be found in section 1.2.2.
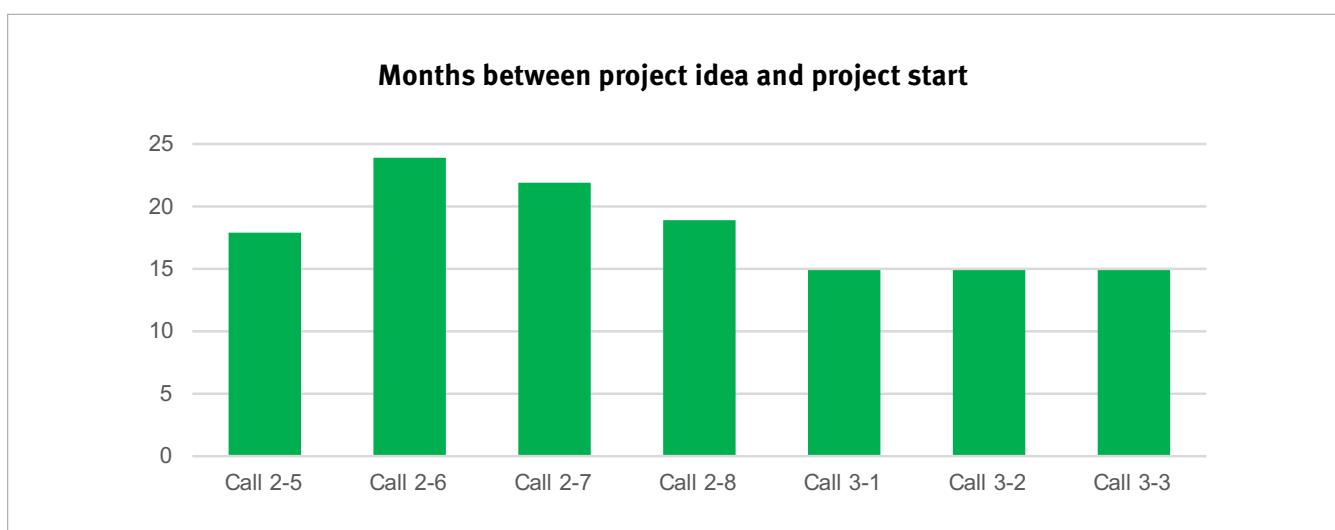
Figure 3: ITEA time from project idea to project start (when >50% of the projects of the Call have started) from ITEA 2 Call 5 to ITEA 3 Call 3

The current status of the ITEA projects is as follows:

|	2017			2016		
	#	Effort in PY	Cost in 100 k€	#	Effort in PY	Cost in 100 k€
Labelled during the year	*18*	*2330*	*2252*	*20*	*2985*	*2737*
Running at end of the year	38	4485	4393	40	4498	4506
Waiting at end of the year	13	1640	1234	9	1660	1373
Completed during the year	12	880	800	15	1408	1541
Cancelled during the year	4	610	710	1	108	117

Table 2: Status ITEA projects in 2017 and 2016 as of 31 December 2017 and 31 December 2016 respectively. Figures are based on labelled and latest FPPs.

3.3. ITEA project landscape

To create innovation-driven growth, ITEA needs to focus on future markets and challenges posed by a fast-changing world in which 'smart' is the key concept. At present, there are seven main societal challenges that the ITEA Community addresses. The figure below shows per Call the distribution of the ITEA projects over these challenges.
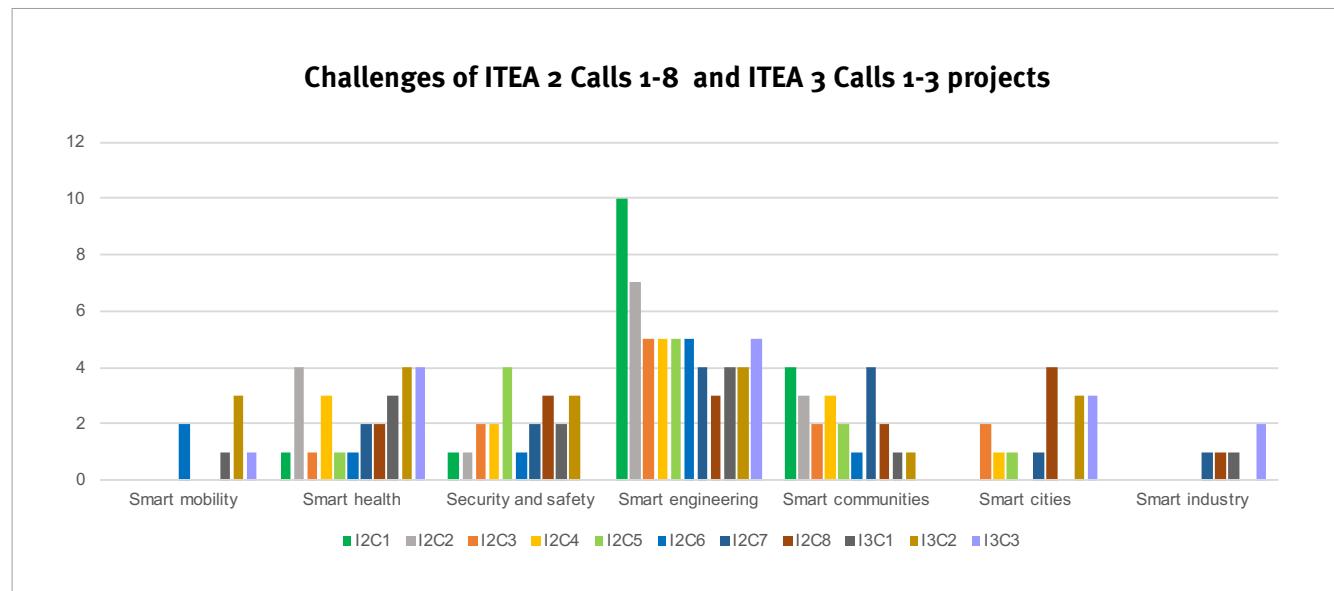

Figure 4: Number of ITEA 2 and ITEA 3 projects per ITEA Challenge

3.4. New projects - ITEA 3 Call 3

The 3ʳᵈ Call of ITEA 3 delivered 24 submitted FPPs out of 27 invited. On 14 March 2017, 18 projects were labelled with a total effort of 2330 person-years, involving 20 countries. Again, there was a good balance in the participation of SMEs, industrial and academic partners, with the SMEs taking the lead in terms of effort, as has increasingly been the case in recent years. During the course of the year, three projects were cancelled: HybridMDE,

BALI and iCardio. HybridMDE has submitted a new proposal in ITEA 3 Call 4 which has now been invited for FPP. The BALI proposal was withdrawn because of the low chances for funding in Germany and Finland, while the iCardio project was cancelled after rejected funding from the Netherlands and Finland.

The main themes arising from this Call are:

Themes	ITEA 3 Call 3 projects
Smart cities	BIMy, IntelliMariPal, ProSe, SPEAR
Smart health	BUDDY, PARTNER, Personal Health Empowerment, STARLIT
Smart manufacturing	OPTIMUM, VMAP
Smart engineering	COMPACT, DevOpsKit, HybridMDE, PAPUD, QUANTEX, TESTOMATproject

A short description of each project can be found below:

BIMy – 16026
BIM in the City
Project leader: NETAŞ (Turkey)
Building Information Modelling (BIM) is the digital representation of a construction project that is increasingly used by the Architect, Engineering and Construction industry. The BIMy project aims at providing an open collaborative platform for sharing, storing and filtering BIM among different BIM owners/users and integrating and visualising them in their built and natural environment. BIMy can be seen as an open, generic and secure intermediary vehicle that enables interactions between existing and new applications through a standardised open API platform.

BUDDY – 16034
High Volume, Personalised Tele-monitoring of Remote Patients
Project leader: Sopheon (Netherlands)
Tele-monitoring of patients by hospitals, combined with social patient self-management, is critical to alleviate overburdened health systems around the world. This is specifically true for urban areas. The current medical IT infrastructure is not equipped to tele-monitor massive volumes of patients in parallel. The objective of this project is to develop and validate a cross-functional, generic set of services that is able to address this need on a global scale, as an export product, with a focus on large cities and urban areas.

COMPACT – 16018
Cost-Efficient Smart System Software Synthesis
Project leader: Infineon Technologies (Germany)
Due to the very limited resources provided by Internet-of-Things (IoT) nodes, today's commonly used design approach to trade off development time with software efficiency is not competitive any longer. Therefore, an industry-wide effort is needed to provide measures for fast and efficient IoT software development. The main

goal of the COMPACT project is to provide novel solutions for the application-specific and customer-oriented realisation of ultra-small IoT nodes with a focus on software generation for IoT nodes with ultra-small memory footprints and ultralow power consumption.

DevOpsKit – 16044
DevOps Toolbox for enhancing Engineering of Complex Distributed Software Systems
Project leader: General Technologies Consulting, S.L (Spain)
DevOps is a popular software development methodology which connects development, quality assurance and technical operations personnel, in order to create a pipeline for the effective production of high-quality software systems. DevOps requires software companies, in particular SMEs, to compose and integrate their own toolset, which represents a big obstacle in applying DevOps. DevOpsKit will provide a DevOps approach and toolset that can be automatically customised and evolved to the development situation at hand and ultimately be applied right out-of-the-box at low effort.

IntelliMariPal - 16024
Intelligent Maritime Exchange Platform
Project leader: VTEK (Turkey)
The aim of the IntelliMariPal project is to develop an intermediary communication platform to increase the interoperability and data exchange between different users/systems in the maritime domain (port level, multi-port level, regional, national, worldwide) as well as create the interfaces with port facilities for the efficient movement of ships to port and from port to the next destination. IntelliMariPal interfaces and cloud-based architecture will allow ports to bring their operations in line with the latest developments at IMO, EU/EMSA with the capability of being able to effectively plan for their future developments.

OPTIMUM – 16043
OPTimised Industrial IoT and Distributed Control Platform for Manufacturing and Material Handling
Project leader: Demag Cranes & Components GmbH (Germany)

Today's control of industrial processes is done in a highly centralised and hierarchical manner. Future concepts like component based and collaborative automation require much more distributed control functionalities. To support this development, OPTIMUM addresses enhancing the aspects of distributed control, adaptation of IoT technologies to industrial needs, enhancement of control and assistance applications by context and location awareness as well as common-model based 3D engineering and supervision. Thus it will support partners and industry in general to get ready for Industry 4.0 challenges.

PAPUD – 16037
Profiling and Analysis Platform Using Deep Learning
Project leader: Bull/ATOS (France)

Businesses are currently having to deal with a data set that is more than they can handle. Today's necessity is not the usage of data analytics, it is the utilisation of combined technologies in which data analytics are executed to make sense out of the data. The scope of the project is to build a universal model for data analytics using Deep Learning on a proposed set of technologies including HPDA environment that best fits the data provided.

PARTNER – 16017
Patient-care Advancement with Responsive Technologies aNd Engagement togetheR
Project leader: Barco (Belgium)

The PARTNER project offers solutions to support the optimal patient journey for chronic diseases through the health system for appropriate personalised care. Data and information collection will be continuous, seamless and patient-centric. Extension of data collection beyond the walls of hospitals will enhance the capture of the full depth of patient data to more accurately reflect their states of wellness and health. Fast collaborative workflows of interpreted and harmonised data representations will increase the productivity of the caregivers and better justify the patient-centric decisions.

Personal Health Empowerment – 16040
Empowering people to monitor and improve their health using personal data and digital coaching
Project leader: VTT Technical Research Centre of Finland (Finland)

Current care provision is reactive and process driven, treating patients according to predefined pathways with limited possibilities to take into account the individual needs or abilities. Health authorities and care providers are finally noticing the one resource that had remained unused, the person or patient him/ herself! Significant cost reductions can be achieved by preventive solutions to help the person adopt a healthy lifestyle. The Personal Health Empowerment project aims to achieve this goal by empowering people to monitor and improve their health using personal data and digital coaching.

ProSe – 16031
Proximity Services Framework
Project leader: ARDIC (Turkey)

The goal of the ProSe project is the design of a software-intensive system to support the development, deployment and execution of proximity services, which are applications that allow users to intuitively interact with the surrounding IoT enabled environment. Proximity services are automatically deployed when the user is at a specific location. Services are deployed and executed on a generic proximity app without the need for an additional explicit download. Proximity services adapt their behaviour to the surrounding context and interact with the IoT devices in proximity.

QUANTEX – 16054
Quantum Simulation and Emulation
Project leader: Bull/ATOS (France)

The lack of quantum computers leads to the development of a variety of software-based simulators to assist in the research and development of quantum algorithms. This proposal focuses on the development of a combined software-based and hardware-accelerated toolbox for quantum computation. A quantum computing stack including specification language, libraries and optimisation/execution tools will be built upon a well-defined mathematical framework mixing classical and quantum computation. Such an environment will be dedicated to support the expression of quantum algorithms for the purpose of investigation and verification.

SPEAR – 16001
Smart Prognosis of Energy with Allocation of Resources
Project leader: EKS InTec GmbH (Germany)

SPEAR aims to develop a flexible optimisation platform that helps to improve a broad spectrum of industrial production processes in terms of energy-related aspects. Hence, a focus within the project is the energy optimisation of plants' production processes, production lines and (industrial) buildings. The platform will be used to optimise the energy consumption of existing and new production plants, and the method will be applicable to both virtual commissioning as well as running production systems.

STARLIT - 16016
System Technologies for Adaptive Real-time MR Image-guided Therapies
Project leader: Philips (Netherlands)

STARLIT will develop technologies in radiation oncology to improve the quality of life for cancer survivors by improving treatment accuracy and minimising unintended doses to healthy tissue in image-guided radiation therapy. This will be done by using magnetic resonance imaging for 4D anatomy assessment to enable on-line treatment planning, real-time 4D dose accumulation, target tracking, and plan adaptation based on concurrent imaging of anatomy and biomarkers.

TESTOMATproject – 16032

The Next Level of Test Automation

Project leader: Ericsson (Sweden)

Nowadays, quality software has come to mean "easy to adapt" because of the constant pressure to change. Consequently, modern software teams seek a delicate balance between two opposing forces: striving for reliability and striving for agility. The TESTOMAT project will support software teams to strike the right balance by increasing the development speed without sacrificing quality. The project will ultimately result in a Test Automation Improvement Model, which will define key improvement areas in test automation, with the focus on measurable improvement steps.

VMAP – 16010

A new Interface Standard for Integrated Virtual Material Modelling in Manufacturing Industry

Project leader: Fraunhofer SCAI (Germany)

Currently, the exchange of local material information in a Computer-Aided Engineering (CAE) software workflow is not standardised and thus results in a lot of manual and case-by-case implementation efforts and costs. For a holistic design of manufacturing processes and product functionality, knowledge of the detailed and local material behaviour is required. The project VMAP therefore aims to gain a common understanding and interoperable definitions for virtual material models in CAE and to establish an open and vendor-neutral 'Material Data Exchange Interface Standard' community that will carry on the standardisation efforts into the future.

4 Operations

To enable the ITEA stakeholders to get the most out of the ITEA Programme and to promote the ITEA Programme in the best way, there are several operational actions carried out by ITEA. One of the main operations is the organisation of and the attendance at events, along with the evaluation during project reviews, the publication of success stories and the creation of press coverage. In this section the details about the main operations achieved in 2017 are reported.

4.1. Events

Digital Innovation Forum (DIF)

The Digital Innovation Forum (DIF) is an international industry-driven event that focuses on Digital Innovation in Europe and beyond. DIF 2017 was co-organised by ITEA and ARTEMIS-IA and took place on 10 & 11 May 2017 in Amsterdam. The event welcomed 434 members of the global software innovation community; large industry, SMEs, academics, start-ups, investors, representatives from funding agencies and public authorities.

This first edition of the Digital Innovation Forum was dedicated to the 'Digital Transformation', which is an imperative global topic that is accelerating the revolution of business activities, processes, competencies and models in a profound way, and will enable digital technologies to be fully leveraged. Often regarded as a threat to European industries, especially the more traditional ones, the digital transformation should be seen, and used, as an opportunity to create value for business and society. This is what the DIF 2017 was all about.

Progamme highlighs
During this two-day event, attendees were able to enjoy:
- inspiring keynotes on Digital Transformation, including Henk van Houten, CTO of Royal Philips, Jasper Wesseling, Director Innovation & Knowledge of the Dutch Ministry of Economic Affairs, and Max Lemke, Head of Unit, Complex Systems & Advanced Computing, DG CNECT of the European Commission;
- interactive workshops on 4 emerging challenges for industry: Smart Energy, Smart Health, Smart Manufacturing and Smart Mobility. 20+ experts discussed the main innovation trends and shared their insights for these 4 challenges. Interaction with the audience was key;
- impressive R&I results and business impact showcased in the full-scale exhibition including 34 ITEA project booths and 28 booths of ECSEL-JU and H2020 projects, and industry;
- innovation sessions and an innovation market fuelled by inspiring SMEs and start-ups in Digital Innovation and judged by high-ranking juries composed of top industry executives from Airbus, Engie, EUREKA, Indra, National Research Council of Canada, Nokia, Philips, Robert Bosch, Sopheon, STMicroelectronics Italia and Swiss Life, and VCs from ACT Venture partners, Hi inov, iSource Venture Capital and Sofimac Partners; and
- networking while exploring different cuisines during the evening programme at the Amsterdam Foodhallen.

Two new elements were introduced during the Digital Innovation Forum 2017: the interactive workshops and the innovation market & sessions.

Interactive workshops
On Wednesday 10 May, four parallel workshops were organised on four emerging challenges for industry: Smart Energy, Smart Health, Smart Manufacturing and Smart Mobility. Each workshop was set up as a panel with key players in the domain; large industry, academia, SMEs and customers, discussing main innovation trends in the specific challenge. An important element of the workshops was the interaction with the audience, with ample room for Q&A. During the closing session of the DIF, the workshop leaders presented the first results and afterwards a full report was

created. All presentations and the full report can be found at: https://dif2017.org/presentations.html.

Innovation market & sessions
The DIF 2017 explicitly focused on supporting innovative SMEs and start-ups, to access key industry representatives and Venture Capitalists by organising the innovation sessions and market addressing four emerging challenges: Smart Energy, Smart Health, Smart Manufacturing and Smart Mobility.

On 10 and 11 May, a dedicated SME & start-up innovation market took place, enabling SMEs and start-ups to exhibit their innovative idea and product to the DIF 2017 attendees. They were able to explain their idea to VCs, CEOs of large industry and potential customers, or even look for partners to develop the idea further.

On Thursday 11 May, four parallel innovation sessions took place that were open to an audience. Each session consisted of:
- six SME pitches in front of a jury
- Q&A sessions per SME with the jury
- general Q&A session with the audience

The jury delivered a session report including unique quotes for each participating SME / start-up, which they can disseminate to their network and customers. Finally, two SMEs / start-ups per

theme were selected to give their pitch during the plenary closing session in the afternoon of 11 May. These iconic SMEs and their dedicated quotes can be found on: https://dif2017.org/iconic-smes.html.

Awards
During the ITEA Community session, four ITEA Awards of excellence were presented. They highlighted very successful rojects with outstanding contributions to the ITEA Programme:
- AVANTI - for Innovation
- MoSHCA - for SME success
- SEAS - for Innovation & Business impact
- SoRTS - for Innovation & Business impact

Evaluation
The first edition of DIF was evaluated with a score of 3.4 (on a 5-point scale with 3 = good, 4 = very good) and 88% of the respondents considered DIF a useful event for themselves and/ or their business. The keynote speeches were highly appreciated with scores between 3.3 and the remarkable score of 4.0 for the speech of Henk van Houten, CTO of Philips. The same goes for the workshops and innovation sessions, with an average score of 3.5 and 3.4 respectively. 79% of the respondents expressed that the explicit focus of DIF on SMEs and start-ups brought additional value to the event.

DIF 2017 impression

ITEA PO Days 2017 impression

Project Outline Preparation Days – ITEA 3 Call 4

The 2017 ITEA Project Outline (PO) Preparation Days were held on 12 and 13 September in Berlin. The record speed of incoming registrations, the record number of participants and the high number of submitted project ideas that approached last year's record, reaffirmed the importance of this event:

- 307 participants from 18 different countries
- 74 project ideas uploaded in the Project Idea Tool before the event
- 65 project ideas presented during the poster session
- 65 pitches during the parallel sessions

A remarkable feature this year was the high participation from Canada again and the comeback of the UK, which had been absent for a few years. There was also a strong presence from the Public Authorities (Belgium, Canada, Finland, Germany, Netherlands, Spain, Sweden and Turkey) and a big number of Smart manufacturing project ideas, mainly thanks to the ITEA Smart manufacturing workshop and the Canadian Smart manufacturing delegation.

To get inspiration and to see what can be reached through an ITEA project, all PO Days participants were invited to check out the online ITEA Impact stream which was released during the event by ITEA Chairwoman Zeynep Sarılar.

Similar to previous years, the PO Days were well appreciated by the participants and received an overall evaluation score of 4.0 out of 5.

On 2 November 2017, 31 POs were submitted with a total of 3,711 person-years. From the 21 different countries, Germany had the highest participation, followed by Turkey, Spain and France. On 11 December, 26 projects with a total of 3,333 PY from 19 countries, were invited to submit a Full Project Proposal (FPP).

The ITEA 3 Call 4 evolution (so far) can be found on the next page and a detailed description of the ITEA Call progress and figures can be found in section 3.2 of this report.

ITEA 3 Call 4 evolution (so far)
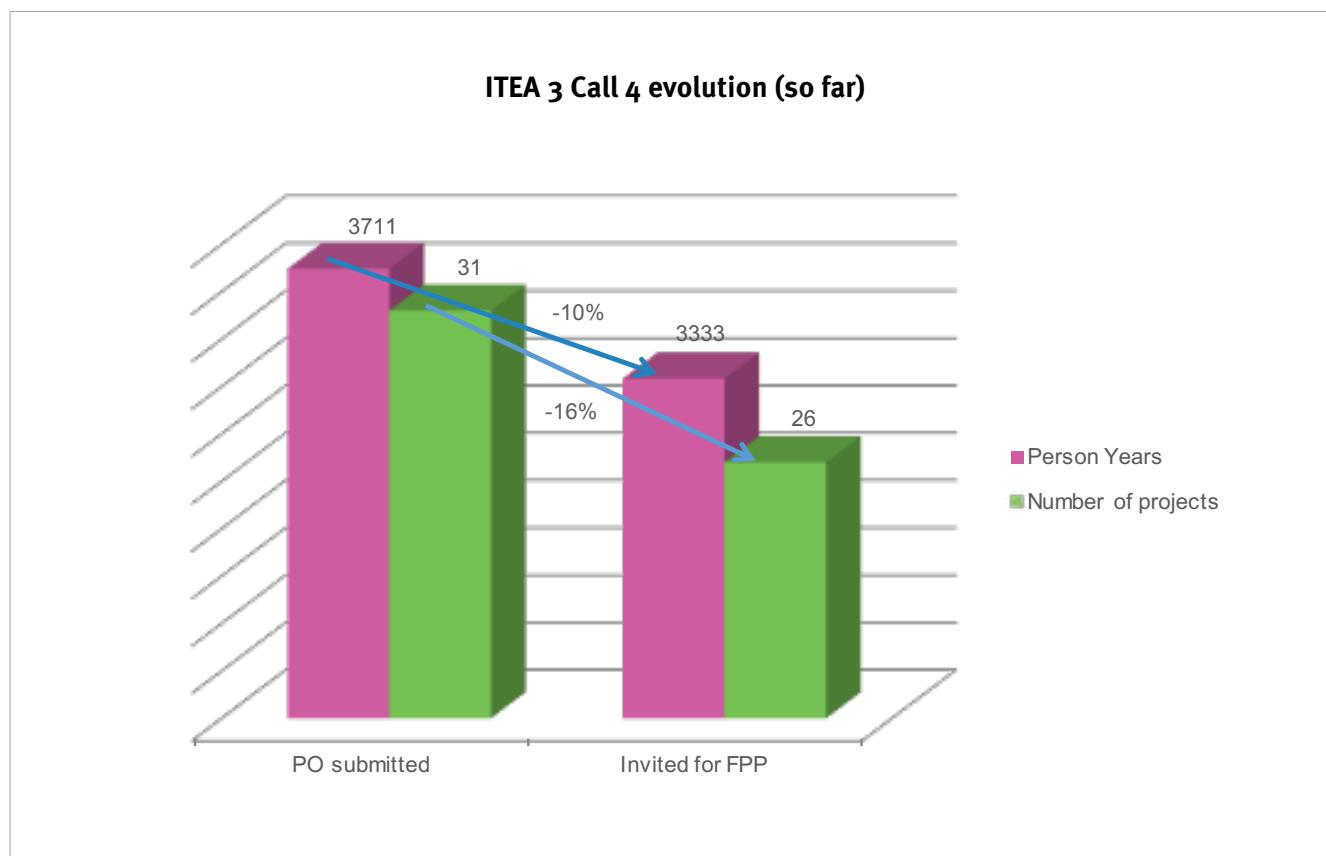
Figure 5: ITEA 3 Call 4 evolution (so far)

ITEA International customer and end-user workshop - Smart manufacturing

Based on the success of the previous two years, on 21-22 June 2017 ITEA organised its 3rd international customer at the Airbus premises in Toulouse. This year's topic was 'Smart manufacturing'. The aim was to find out from the different stakeholders in the value chains their concerns about desired functionalities or any difficulties they encounter in delivering efficiently in their daily environment.

For this Smart manufacturing international customer workshop we gathered representatives from:

Customers: Airbus, Alstom, Daimler, Vitra, Fokker, Ford Otosan, Kordsa, National Research Centre Canada, Philips Lighting, Safran and Valeo

Industrials: Siemens and KoçSistem

SMEs: Algoryx, Convergent Manufacturing Technologies, EKS InTec, Enforma Information and Communication Technologies, Evolution Energie, ICC Elektronics, Innovalia, Jotne, Nextel, Ometa, SGS Control Systems and Sigfox

To organise the discussions we focused on Manufacturing digitisation and Manufacturing organisation, even though there was some overlap. Highlights of the discussions and ideas were:

- **E2E digital integration**
  - Silos interoperability
  - Heterogeneous subsystem
  - Numerous different level of description details
  - Global vision of the plant
  - Multi-sites worldwide ramp-up
  - Special focus on 3D data management

- **Middleware for digital manufacturing**
  - Data acquisition, Data analysis
  - Digital twin
  - Dynamic planning of manual operations
  - Legacy
  - Connectivity, security and wireless interoperability

- **Production line flexibility**
  - Different products and product personalisation on the same line

- Digital twin could ensure command & control of the flexible production line
- High-end simulation tools for production line design and management

- **Predictive maintenance**
  - For the production line and for the final product
  - Potential for new business models
  - Non cooperative machine monitoring
  - Digital twin for each machine to compare reality and forecasted behaviour
  - Quality control

- **Security**
  - Disconnection of industrial network from internet keeping flexibility?
  - Model of security compliant with flexibility

- **Geolocalisation**
  - Asset logistic

- **Augmented reality**
  - Training, maintenance

- **Robots, Cobots**
  - Collision prevention

- **3D printing**
  - Control / verification of dimensional, roughness, porosity of the printed parts
  - Reverse engineering

A full report is available at:
https://itea3.org/news/the-results-of-the-itea-international-customer-end-user-workshop-on-smart-manufacturing.html.

At the PO Days in September 2017, 28 project ideas related to Smart manufacturing were presented. Finally, 7 Smart manufacturing Project Outlines related to the customer workshop were submitted.

External events and activities to promote ITEA
During 2017, the Presidium and the ITEA Office representatives attended various external events and meetings to promote ITEA. Highlights include:

- **Visit to Koç Innovation Group (5 April)**
  Zeynep Sarılar was invited to present ITEA during a company visit to Koç Innovation Group on 5 April, which was very well appreciated. OPET, a chain of fuel stations that joined Koç Group at the end of 2002 with a 50% partnership, expressed interest in joining ITEA.

ITEA International customer and end-user workshop on Smart manufacturing impression

- **B2B Software days (25-26 April)**
  ITEA was invited to take part in the B2B Software Days (co-organised by the FFG, EEN, EUREKA and others). Zeynep Sarılar presented ITEA in the plenary morning session on 26 April. Three ITEA 3 Call 3 projects were presented, also to see whether Austrian companies could have added value to these projects.

- **EUREKA Innovation Week (15-19 May)**
  The EUREKA Spanish Chair (2016-2017) organised the Open EUREKA Innovation Week 2017 in Barcelona on 15-19 May, attended by around 1,000 participants. The main programme started on Tuesday 16 May with the open EUREKA Day. EUREKA High-Level Group Chairman Francisco Marín welcomed the audience. After the opening session, a round table was held that included Huub Rutten, Sopheon's Vice President of Product Research and Design and ITEA project leader. He made a very strong case on the importance of ITEA for companies like his, which was highly appreciated by the audience. This session was followed by the presentation of the EUREKA Innovation Awards 2017. This year, ITEA 2 project ADAX on Cybersecurity won the EUREKA Innovation Award 2017 in the category 'Competitiveness'. ADAX project leader Adrien Philippe Bécue of Airbus Cybersecurity pitched the project.

  The Cluster Day on Thursday 18 May started with a panel discussion between representatives of all EUREKA Clusters. More information about this session can be found in section 2.3 Intercluster activities. In the afternoon, ITEA was presented by the full Presidium team in an ITEA info session.

  Apart from the plenary programme, at the exhibition, ITEA was represented in several booths, including ADAX, ACCELERATE, ReVAMP² and AMALTHEA4Public. ITEA was represented as well in the Intercluster booth together with Penta, EURIPIDES², EUROGIA2020 and Celtic-Plus.

- **TAFTIE expert session (24 May)**
  ITEA was invited to take part in the European Network of Innovation Agencies (TAFTIE) Expert Session in Prague on 24 April. Fopke Klok presented ITEA and the Cluster way of working during this event.

- **EBN Congress (7 July)**
  Zeynep Sarılar was invited by the Head of ESE, Philippe Vanrie, to take part in the EBN Innovation Network Congress on 7 July. She was one of the panellists in the plenary debate on "Why Ecosystems are Important to Innovation and Entrepreneurship". There has been positive interest from industry players like Atos, Engie, Air France and SAP. Industrialists explained how they reach innovation and innovative SMEs / start-ups. Moreover, representatives from Colombia, India and the USA showed interest in ITEA and EUREKA Clusters.

- **Canadian info event (11 September)**
  Preceding the ITEA PO Days, the National Research Council (NRC) of Canada organised an info event in Berlin. Philippe Letellier and Zeynep Sarılar were invited to present ITEA to the large Canadian delegation that travelled to Berlin for the ITEA PO Days.

- **Digital Innovation Hubs (22 September)**
  On 22 September, Fopke Klok attended the Digital Innovation Hubs event, co-organised by Innovalia. He (re)presented ITEA in a panel on "Network of European #DIH beyond 2020" – moderated by Max Lemke of the EC.

- **TNO ESI Symposium (3 October)**
  Kay van Ham represented ITEA with a booth in the exhibition of the TNO-ESI Symposium at the Eindhoven University of Technology. It was largely a Dutch-focused event that provided an opportunity to meet with several Dutch ITEA Community members and newly interested parties.

- **GITEX Technology Week (8-12 October)**
  Zeynep Sarılar was invited, in her role of ITEA Chairwoman, to attend and actively participate in the GITEX Technology Week in Dubai. During the Vertical Days – Tech leaders programme, she gave the day's keynote speech on 'Inspiring Leadership' and afterwards she took part in a panel discussion on 'The role of educational establishments in attracting women to Science, Technology, Engineering, and Math (STEM)'.

- **SSF – Vinnova conference on Software for Competitiveness (14 November)**
  ITEA and ARTEMIS-IA / ECSEL were invited to take part in the conference on Software for Competitiveness which was jointly organised by Vinnova and SSF (Swedish Foundation for Strategic Research). Laila Gide, President of ARTEMIS-IA, and Philippe Letellier both gave a speech. Philippe presented ITEA, Swedish participation in ITEA and several success stories including Swedish partners. During the event, there was also an exhibition in which the ITEA projects with Swedish participation, ENTOC & TESTOMAT, presented themselves. Furthermore, ITEA and ECSEL also had a promotional booth together with the event organisers.

- **EUREKA & EUROSTARS Day (1 December)**
  ITEA was invited by the Croatian EUREKA NPC to take part in its EUREKA and EUROSTARS Day that was organised on 1 December in Zagreb. Fopke Klok presented ITEA in a plenary presentation and discussed the opportunities in a parallel group discussion that followed.

- **EFECS (5-7 December)**
  On 5-7 December, the European Forum for Electronic Components and Systems (EFECS) 2017 took place in Brussels, jointly organised by AENEAS, ARTEMIS-IA, EPoSS, ECSEL Joint Undertaking and the European Commission. The programme entailed a conference programme, ECS SRA sessions, breakout

sessions and an exhibition. Loes van den Borne represented ITEA and joined EUREKA at the exhibition.

- Additionally on 24 August, Fopke Klok and Zeynep Sarılar met with Maarten Sileghem, the successor of Leo Van de Loock and new DC member of VLAIO, to get acquainted.

- On 25 September, Zeynep Sarılar visited the Ankara University TTO to give a presentation on EUREKA Clusters and ITEA.

- Furthermore, on 26 September, Zeynep Sarılar visited TÜBITAK and met with Ilker Murat Ar, EUREKA High Level Group

Representative, Emre Yurttagul, EUREKA National Project Coordinator and Mete Karaca, ITEA ITAC member, to discuss the Turkish funding improvements.

- On 17 November, Fopke Klok and Zeynep Sarılar visited the European Commission to meet with Stephane Ouaki, Head of Unit SMEs, Financial Instruments & State Aid, and Laura Piani, Assistant Policy Officer at DG Research and Innovation, to introduce EUREKA Clusters and how they work. In the FP9 programme, the main purpose is to understand the existing programmes, not to overlap with any existing success stories and to extend the impact of these success stories.

4.2. ITEA Project reviews

One of the key values of ITEA is the support that is offered by experts from the domain to monitor the projects in order to keep them close to the market, challenge them to solve real painpoints and encourage them to extend their reach. In 2017, the ITEA Bodies and Office reviewed 30 projects. 7 of these projects had their first review, 10 their second review and 13 their final review.

The reviews were well appreciated by the project leaders with an average score of 3.50 out of 5.0 for the first and second reviews.

Project leaders of completed projects even give a score of 4.0 out of 5.0 for the relevance of the reviews for their project. As Adrien Philippe Bécue, project leader from the award-winning ITEA project ADAX, expressed: "*The continuous and constructive mentoring of ITEA, from project idea to exploitation, with its business impact-driven approach helped us to reach the full potential of the project.*"

4.3. ITEA Success and Impact stories

4.3.1. Success stories

During a project lifetime, ITEA pushes innovation and targets business impact. These challenges, combined with the ambition to be first in the global market, are key to success. Several ITEA projects achieved this; some right after the end of the project, some several years after. A few years ago, ITEA started to follow up the finished projects and publish the successes. In 2017, ITEA had 2 new strong success stories:

SAFE Success story

Driving on the road is a way of life. Being able to get safely from A to B is something we take for granted. And today driving is safer than it was ten years ago, and ten years before that, and in ten years time it will be even safer. In 2011, a new standard, ISO26262, was published for the functional safety-related aspects during the safety lifecycle of systems related to electrical, electronic and software elements that provide safety critical functions. The goal of the SAFE project was to enable the automotive industry to comply effectively with this ISO26262 by providing model-based development processes that integrate functional and safety development based on existing

development lifecycle processes. As a result of the SAFE project, Continental established the ISO26262 compliance in two major domains, namely the safety critical domains of powertrains and chassis brake systems. These domains represent 40% of Continental's product share. Thanks to the SAFE project, Continental was able to keep its leading role in these domains.

SEAS Success story
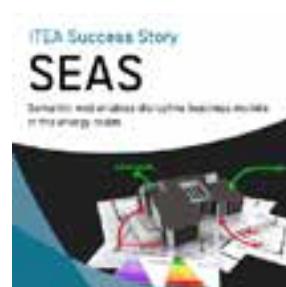
The SEAS project is at the heart of the energy transition. The project set out to enable interworking of energy, ICT and automation systems at consumption sites, introducing dynamic and intricate ICT-based solutions to control, monitor and estimate energy consumption. It also explored business models and solutions to enable energy market participants to incorporate micro-grid environments and active customers. In terms of revenues, the SEAS exploitation in the short term (2017) is expected to be €2 million, with medium-term exploitation (2018) anticipated to be €25 million and long-term revenues (2019 to 2021) as much as €600 million. The developed data access point manager architecture has been chosen by ENGIE as the reference architecture for the company's overall service

platform. The market potential using the service platform including the applications (cumulative from 2017 to 2020) is approx. $70 billion for the geographical regions where the ENGIE competence already exists.

4.3.2. Impact stream

In 2017, an additional need arose to get a quick grasp of the real impact of a project; in a few highlights some facts about the current results. The Public Authorities have put their trust in several projects and supported them with public funds, making it possible for the project partners to get the most out of it. To enable these Public Authorities to justify the spending of public funds, ITEA is now gathering project impact stories to show in what way they solve key societal challenges and have an impact on business, on the market and on society. These impact stories are collected in the ITEA Impact stream, a living publication that consists of 2 main elements: 7 main societal challenges and a set of impact stories showcasing the impact highlights of successful ITEA projects.

At the end of 2017, 9 impact stories were collected and published online: https://itea3.org/impact-stream.html.

Below you can find the impact highlights per project:

ADAX Impact story

The ITEA 2 project ADAX has delivered a set of key innovations improving prevention, detection, decision support, countermeasure enforcement and knowledge management to support security operation on complex and critical IT infrastructures.

Impact highlights:
- For a random set of attack scenarios, a decision time-saving from 1 hour to 3 minutes and a reduction in average response cost from €271 k to €100 k was achieved.
- A total of 12 customer contracts have been reported directly linked with the project results, addressing diverse vertical markets like finance, military, retail, space and oil & gas.
- ADAX is known to have directly contributed to €7 m of the €33 m turnover recorded by Cassidian Cybersecurity SAS in 2014 and led to the recruitment of 6 additional engineers. By 2016, all developments from ADAX had been embedded in the Cymerius® commercial version.
- The mixed-signature based intrusion prevention system developed by NETASQ has been deployed by Stormshield on more than 10,000 appliances.
- Yapi Kredi Bank has demonstrated the full ADAX system on its IT network in Gebze (Turkey), supporting 5,000 users.
- The SMEs in the project consortium, like 6cure, P1M1 and Provus, have delivered key innovations which are being largely adopted by the market. For example, the MAMAT tool developed by Provus is used by MasterCard to model its ATM management systems (PAYS).

AVANTI Impact story

European industry's need for flexible production system design, optimised time to market and extremely high product quality provided the background for the ITEA 2 project AVANTI. The goal was to develop a virtual commissioning test methodology based on behaviour simulation of production systems.

Impact highlights:
- In all application domains, the project resulted in an efficiency improvement of 25-30% in production preparation:
  - Moventas – windmill gearboxes: significant reduction of the months-long gearbox testing process.
  - Arcelik – transportation systems for white goods: decreasing the number of stops of trolleys during line commissioning through preceding simulations.
  - Daimler – production equipment for automotive final assembly: Reducing time for virtual commissioning of automated assembly stations through automated testing and more efficient simulation models.
- Already at the final review of the project, Daimler had several persons working with the tools from the project, together with even more people at their European suppliers.
- The growth of EKS in the field of digital innovation, from 15 employees (Sep 2013) to 45 employees (Jun 2017) was partly based on their participation in AVANTI.
- TWT advanced the use of co-simulation approaches from its original domain of the automotive development process into several other industry sectors. Of note here are the aerospace industry, the building automation and management sector, and, of course, the field of manufacturing and production planning.
- In terms of standardisation, FMI has started to be integrated into current virtual commissioning systems and there are activities to also integrate it into AutomationML as well as integrating pneumatic plan descriptions into AutomationML.
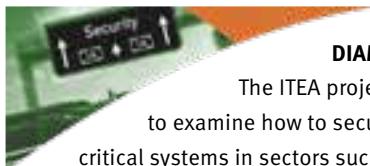
DIAMONDS Impact story

The ITEA project DIAMONDS set out to examine how to secure safety and security-critical systems in sectors such as transport with train control systems, healthcare with medical patient care, automotive with car-to-infrastructure communications and mobile telecommunications.

Impact highlights:
- As a result of the DIAMONDS project, Fraunhofer FOKUS gained recognition as an expert in the field of security testing in industry as well as in the academic realm. RACOMAT, the outcome of DIAMONDS, is currently the main tool for risk-based security testing within Fraunhofer FOKUS.
- Thanks to the business impact coming from the results of the project, Montimage's workforce was increased from five to twelve people.
- Using the results from DIAMONDS, Codenomicon was able

to identify the OpenSSL Heartbleed vulnerability, which had gone unidentified for over two years and impacted over 500,000 websites.
- Multiple standardisation documents reflecting the project's case studies have been adopted by the European Telecommunications Standards Institute (ETSI) and have been forwarded to international standardisation bodies.
- Techniques like fuzz-testing and risk-based testing have been recognised by international and national certification bodies like the German BSI. They will become part of supplemental guidelines to support guidelines such as e.g. the Common Criteria Certification.

IMPONET Impact story

With smart metering and real-time monitoring becoming crucial to operate a power network, the ITEA 2 IMPONET project addressed the modelling, design and implementation of a comprehensive, flexible and configurable information eco-system.

Impact highlights:
- The IMPONET project enabled higher energy efficiencies for utilities of between 5 and 10% with cost saving for consumers of around 10% through benefiting from access to hourly energy information and therefore the ability to adjust consumption, depending on the price of energy.
- Indra's Web Portal for Residential Customer Meter Data has been deployed for the overall customer base of Gas Natural Fenosa, which is in excess of 3 million customers, representing a sizable portion of the total Spanish market. In the future, Gas Natural Fenosa will be rolling out this platform for other market segments and foresees future deployment in other parts of the world, mainly in South America.
- Indra's iSPEED platform was implemented and is currently in use by Elektro (Brazil) for the monitoring and control of the entire distribution network, which is comprised of more than 170,000 transformers and serves more than 2.4 million customers in a rural and urban hybrid environment. Elektro is a subsidiary of Iberdrola, which is currently evaluating the extension of the use of iSPEED to other subsidiaries and to Iberdrola itself. In this future short-term scenario, the combined number of customers for the Iberdrola group indirectly served by this platform, will be in excess of 25 million worldwide.
- Indra's advanced Meter Data Management platform which was built on top of the IMPONET results, has already been successfully implemented in the largest utility company in Uruguay (UTE) and is currently being deployed in ENEA in Poland.
- Indra hired roughly thirty new analysts/programmers because of all these new business developments. These are conservative figures and Indra plans to significantly enhance the business in the coming years.

MEDIATE Impact story

The ITEA 2 project MEDIATE took up the challenge to reduce healthcare costs and to improve the predictability of patient outcomes. The key lies in integrating medical imaging systems fully into surgical procedures and hospital workflow systems.

Impact highlights:
- For Philips, the strategy and improvements based on the MEDIATE results in both its MRI and Image Guided Therapy businesses have significantly boosted annual sales volume.
  - Philips' metal artefact correction techniques have been brought to market with sales of over 1000 licenses in 2 years.
  - The unique capabilities of the Philips platform ScanWise Implant have set them above their competitors.
  - One of the leading hospitals in the Netherlands using Philips' new Azurion system reported significant time efficiency gains before (12%), during (17%) and after (28%) interventional procedures, which gives the ability to treat 1 more patient a day in the same room (on an average of 6-8 patients a day).
- By the end of 2016, over 1000 operating rooms within Europe had installed Barco's Nexxis platform - a networked digital Operating Room - which is based on MEDIATE results. At the end of 2017 this had increased to over 1600 installations and accelerated adoption is expected over the next few years.
- Following the MEDIATE project, Digisens is now selling 300 licenses per year of Cone beam computed tomography (CBCT) reconstruction for clinical systems. Moreover MEDIATE opened new investigation fields for Digisens in the domain of noncircular reconstruction trajectories with a direct impact on industrial inline 3D inspection and homeland security.
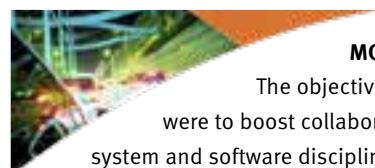
MODELISAR Impact story

The objectives of the MODELISAR project were to boost collaboration and innovation across system and software disciplines and to test the vehicle behaviour earlier, faster and more affordably in the virtual world. During the project, an international and open Functional Mock-up Interface (FMI) standard was developed.

Impact highlights:
- The FMI standard is currently supported by some 100 modelling, simulation, code generation and testing tools offered by more than 50 tool - free or commercial - suppliers.
- Dassault Systèmes delivers six FMI compatible tools to dozens of customers who are leading manufacturers of complex systems like aircraft, cars and energy systems. These 'open' tools are key enablers in these companies' product development processes and are now being integrated in the Dassault 3DEXPERIENCE platform to support interoperability in their business processes. The 3DS development platform is in the core strategy of Dassault Systèmes.

- FMI helped TWT to boost its innovation offer through many new collaborative projects (ITEA, H2020, ECSEL and national) and business contracts with leading German automotive OEMs.
- Together with major automotive OEMs inside the VDA PLM & ProStep iViP Consortium, AVL has become one of the leading players in interfacing tools for design, validation and optimisation based on FMI.
- Based on the results of MODELISAR and FMI, Siemens Industry Software NV (Belgium) has created two new product categories in its business: Virtual Sensing, and Hardware-in-the-loop & Human-in-the-loop simulations. These categories have contributed significantly to entry into new, rapidly growing markets. After MODELISAR, Siemens continued the R&D in FMI 2.0 with Flemish regional funding from VLAIO and two PhD student projects.
- The FMI standard is now managed and developed as a Modelica Association Project (MAP) through active participation of 16 companies.

RECONSURVE Impact story

The challenge faced by the ITEA 2 project RECONSURVE was to develop an open interoperable maritime surveillance framework that can enable existing systems to share information and so improve maritime security.

Impact highlights:

- The RECONSURVE project had a large user orientation; the Turkish Coast Guard Command participated in the project as an end user, and provided invaluable guidance throughout with its domain expertise. Further exploitation is planned for 2018-2020 by Aselsan with the Turkish Coast Guard and Turkish Navy.
- Through the licensing of marine terminals and analysis systems developed through the RECONSURVE project, GMT generated an income of about €1410 k.
- For Evitech, the income which is created by participating in the RECONSURVE project is about €1000 k.
- Participation in the RECONSURVE project helped SMEs like SRDC to enter new markets and increase their product portfolio. Furthermore, the project paved the way for further future cooperation between SMEs like Evitech with large industries like Airbus.

SAFE Impact story

The goal of the SAFE project was to enable the automotive industry to comply effectively with this ISO26262 by providing model-based development processes that integrate functional and safety development based on existing development lifecycle processes.

Impact highlights:

- SAFE was an essential part of the jigsaw in establishing ISO26262, a worldwide standard and one of the most important in the automotive industry.
- SAFE enabled the automotive industry to comply effectively with ISO26262, which is mandatory for all OEMs and suppliers. SAFE realised the first incorporation of ISO26262 in a standardised Architecture Description Language (ADL) while the SAFE guidelines provide an interpretation of the ISO26262 standard to the market.
- SAFE has set the foundation to enable EAST-ADL, AUTOSAR, OMG and other standards to evolve as well as helped to identify limitations of the ISO26262 such that the basic standard itself can also be improved in subsequent iteration.
- Thanks to the SAFE project, Continental established the ISO26262 compliance in two major domains, namely the safety critical domains of powertrains and chassis brake systems. These domains represent 40% of Continental's product share and thanks to the SAFE project, Continental was able to keep its leading role in these domains.

SEAS Impact story

The SEAS project set out to enable interworking of energy, ICT and automation systems at consumption sites, introducing dynamic and intricate ICT-based solutions to control, monitor and estimate energy consumption.

Impact highlights:

In terms of revenues, exploitation short-term (2017) is expected to be €2 million, with medium-term exploitation (2018) anticipated to be €25 million and long-term revenues (2019 to 2021) as much as €600 million.

- The DAPM architecture has been chosen by ENGIE as the reference architecture for the company's overall service platform. The market potential using the service platform including the applications (cumulative from 2017 to 2020) is approx. $70 billion for the geographical regions where the ENGIE competence already exists.
- Empower has incorporated dynamic microgrid strategies into its future roadmap and has enabled interaction of flexible energy resources with the Enerim EMS solution used to prototype future interactions in the SEAS project. The Enerim CIS solution that builds on SEAS knowledge in connectivity, is gaining ground as the premier new energy customer information management and billing solution. It is deployed

now to enable emerging datahub enabled retail markets in Finland with over 45% of the national distribution metering points being managed by it in the next years.

- Asema's IT solutions now use the Smart API to coordinate and share information between resourcing and planning systems used by cities. Coordination between departments and

organisations can now be made much more effortlessly and automatically. For instance cities can combine the routes and tasks of people managing infrastructure.

- A public repository in W3C and alignment with standards supported by M2M, ETSI & AIOTI.

4.4. Press coverage

In 2017, ITEA and its projects were mentioned several times on external websites and press publications. 29 publications were written by 21 different bureaus, from 9 different countries. Several articles were issued by several publications; these related articles can be found at the bottom of the published article.

We have excluded simple event announcements of the Digital Innovation Forum, the EUREKA Innovation Week and the PO Days from this overview. The same goes for news messages about these events on our partner websites.

A full press coverage overview can be found on:
https://itea3.org/press-coverage/year-2017/page-all.html.

Appendix A

Call statistics per country and per year

Call	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Call 2-1	366	743	645	164	-	-	-	-	-	-	-	-	**1918**
Call 2-2	-	345	632	541	201	-	-	-	-	-	-	-	**1720**
Call 2-3	-	-	305	657	624	339	40	-	-	-	-	-	**1964**
Call 2-4	-	-	-	162	661	678	412	153.2	1.4	-	-	-	**2067**
Call 2-5	-	-	-	-	65.5	366	463	269	70	-	-	-	**1234**
Call 2-6	-	-	-	-	-	145	415	452	245	24.5	-	-	**1281**
Call 2-7	-	-	-	-	-	-	70	390	406	242	7	-	**1115**
Call 2-8	-	-	-	-	-	-	-	87	393	474	305	22	**1281**
Total ITEA 2 Calls	**366**	**1088**	**1582**	**1524**	**1552**	**1527**	**1400**	**1350**	**1116**	**741**	**312**	**22**	**12580**

Call	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Call 3-1	-	-	-	-	-	-	93	373	445	340	71	-	**1322**
Call 3-2	-	-	-	-	-	-	-	206	686	862	577	80	**2410**
Call 3-3	-	-	-	-	-	-	-	-	282	776	791	486	**2334**
Total ITEA 3 Calls	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**578**	**1413**	**1978**	**1438**	**566**	**6066**

Table 3. Participation in person-years per Call per year as of 31 December 2017. Effort based on latest FPP.
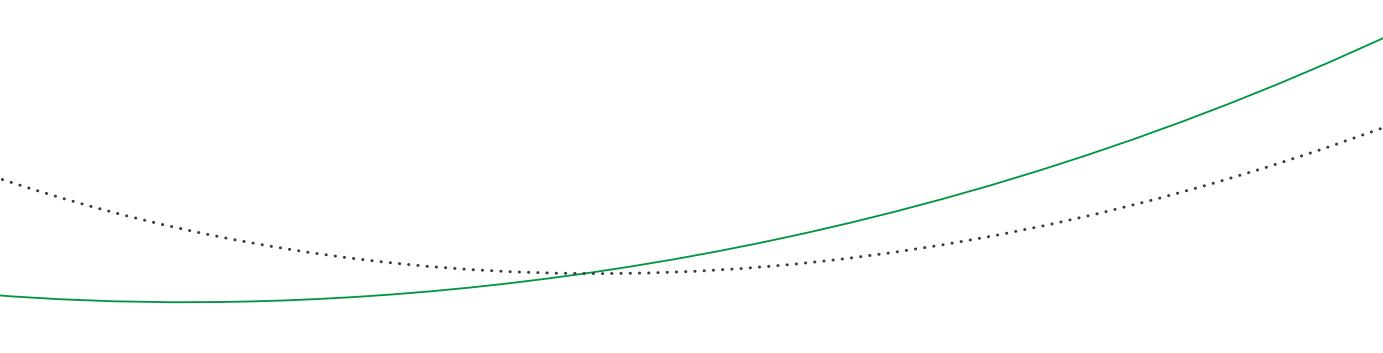
Call	AUT	BEL	CAN	DEU	ESP	FIN	FRA	ISR	KOR	NLD	NOR	SWE	TUR	OTH	Total
Call 2-1	20	63	-	166	567	395	448	14	-	55	66	48	6	69	**1918**
Call 2-2	38	90	-	182	576	147	441	13	6	150	-	18	35	24	**1720**
Call 2-3	-	104	-	100	552	246	460	-	-	270	17	41	61	114	**1964**
Call 2-4	4	65	-	119	394	204	785	-	22	213	8	17	163	74	**2067**
Call 2-5	14	32	4	89	215	111	403	5	61	87	-	32	109	71	**1234**
Call 2-6	-	92	-	97	166	188	404	20	8	108	-	36	85	77	**1281**
Call 2-7	-	40	-	118	108	151	191		78	100	-	48	187	95	**1115**
Call 2-8	-	136	-	82	96	110	222	35	13	159	5	26	327	70	**1281**
Total ITEA 2 Calls	**77**	**621**	**4**	**952**	**2675**	**1551**	**3354**	**87**	**188**	**1143**	**96**	**265**	**973**	**593**	**12580**

Call	AUT	BEL	CAN	DEU	ESP	FIN	FRA	ISR	KOR	NLD	NOR	SWE	TUR	OTH	Total
Call 3-1	20	53	11	147	85	37	224	-	86	246	-	40	244	130	**1322**
Call 3-2	-	99	203	223	260	167	223	14	137	299	-	78	482	225	**2410**
Call 3-3	17	87	168	319	320	200	111	16	32	333	-	122	387	221	**2334**
Total ITEA 3 Calls	**37**	**239**	**383**	**688**	**665**	**404**	**557**	**30**	**255**	**878**	**0**	**241**	**1113**	**575**	**6066**

Table 4. Participation in person-years per Call per country as of 31 December 2017. Effort based on latest FPP.

Appendix B

How to access the online data

The ITEA Community website (https://itea3.org/community) gives access to restricted information for the ITEA Community.

How to login
The restricted ITEA Community website can be accessed on https://itea3.org/community. Your credentials for the MyITEA account for the ITEA website – event registration, etc. – can also be used to access this restricted part of the website. A MyITEA account can be created by clicking on 'Create new account' on the login page of the Community website. The e-mail address is used as a unique identification.

Specific access rights determine what is visible on these pages for each person. Depending on these rights the following data can be accessed:
- project management and project documents – e.g. PO, FPP, progress reports and change requests;
- evaluation and reviewing and all necessary documents – e.g. evaluation forms and review presentations;
- meetings and binders;
- ITEA calendar;
- general ITEA information – e.g. guidelines, templates and corporate identity; and
- contacts.

Appendix C

Glossary of terms

3D	Three-dimensional
4D	Four-dimensional
ADL	Architecture Description Language
AENEAS	Association for European Nano-Electronics Activities
AICC	ARTEMIS-IA ITEA Cooperation Committee
AOITI	Alliance for Internet of Things Innovation
API	Application Programming Interface
ARTEMIS	Advanced Research and Technology for Embedded Intelligence and Systems
ATM	Automated teller machine
B2B	Business-to-business
BMBF	Bundesministeriums für Bildung und Forschung
BMWi	Bundesministeriums für Wirtschaft und Energie
BSG	(ITEA) Board Support Group
BSI	Bundesamt für Sicherheit in der Informationstechnik
CAE	Computer-aided engineering
CBCT	Cone beam computed tomography
CEBIT	Centrum für Büroautomation, Informationstechnologie und Telekommunikation
CEO	Chief Executive Officer
CIS	Connectivity & Integration Solutions
CTO	Chief technology Officer
DC	(ITEA) Directors Committee
DIF	Digital Innovation Forum
DG	Directorate-General
DGE	Direction générale des entreprises
EC	European Commission
ECS	Electronic Components and Systems
ECSEL	Electronic Components and Systems for European Leadership
EEN	Enterprise Europe Network
EFECS	European Forum for Electronic Components and Systems
EMS	Energy Management System
EMSA	European Maritime Safety Agency

EPoSS	European Technology Platform on Smart Systems Integration
ESE	EUREKA Secretariat
ESI	Embedded Systems Innovation
ETSI	European Telecommunications Standards Institute
FMI	Functional Mock-up Interface
FFG	(Österreichische) Forschungsförderungsgesellschaft
FP9	Framework Programme 9
FPP	(ITEA) Full Project Proposal
GDPR	General Data Protection Regulation
GITEX	Gulf Information Technology Exhibition
GSMA	Global System for Mobile Communications Association
H2020	Horizon 2020
HPDA	High Performance Data Analysis
HLG	High Level Group
IA	Industry Association
ICT	Information and Communication Technology
IFC	ITEA / ITEA 2 / ITEA 3 Founding Company
IMO	International Maritime Organization
IND	Industry
IoT	Internet of Things
ISO	International Organization for Standardization
IT	Information Technology
ITAC	ITEA (Public) Authorities Committee
ITEA	Information Technology for European Advancement
JU	Joint Undertaking
KPI	Key Performance Indicator
M2M	Machine-to-Machine
NPC	(EUREKA) National project co-ordinator
NRC	National Research Council
OEM	Original equipment manufacturer
OTH	Others
PENTA	Pan European partnership in micro and Nano-Technologies and Applications
PhD	Doctor of Philosophy

PO	(ITEA) Project Outline
PPR	(ITEA) Project Progress Reports
PY	Person-years
Q&A	Questions & Answers
R&D	Research & Development & Innovation
R&D&I	Research & Development & Innovation
RES	Research institutes
SiSS	Software-intensive Systems & Services
SME	Small and Medium-sized Enterprise
SRA	Strategic Research Agenda
SSF	Swedish Foundation for Strategic Research
STEM	Science, Technology, Engineering and Math
STG	(ITEA) Steering Board
TNO	Nederlandse Organisatie voor toegepast-natuurwetenschappelijk onderzoek
VCs	Venture Capitalists
VLAIO	Agentschap Innoveren en Ondernemen

ISO country codes

AUT	Austria
BEL	Belgium
CAN	Canada
DEU	Germany
ESP	Spain
FIN	Finland
FRA	France
GBR	Great Britain
AUT	Austria

ITEA3