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# Operations

To enable all ITEA stakeholders to get the most out of the ITEA programme and to promote the ITEA programme in the best way, several operational actions are carried out by ITEA. In this section, the details about the main operations achieved in 2021 are reported.

## 4.1 ITEA Impact stories

As indicated in **section 1.1 ITEA project impact**, one of our main activities was to promote the incredible results of the ITEA projects. Because of this, the Impact stream grew to 32 strong Impact stories in 2021. Two examples, Reflexion and FUSE-IT, were already shown to inspire you. Here, you can continue your journey with two additional ITEA Impact story highlights. The full stories can be read online: <https://itea4.org/impact-stream.html>.

### ASSUME Impact story

The ITEA project ASSUME (Affordable Safe & Secure Mobility Evolution) dealt with the demands of multi-core technologies in highly automated systems. It assures safety-relevant, performance-critical functionality and is traceable throughout the development process via the efficient verification of large systems.

#### Impact highlights:

- ▶ ASSUME has enabled the use of results between different tools, including:
  - A 50% increase in the (run-time) performance of analysis tools.
  - A 60% reduction of spurious warnings in analysis tools for single cores.
  - An almost 100% reduction of error classes in single-core analysis.
  - An 80% or more success rate of traceability of run-time errors back to the model level.
  - A 40% cut in efforts to inspect runtime errors in a typical industrial setting.



- › In Bosch, the methods developed in ASSUME are now routinely used for large software products with more than 2 million lines of code. Furthermore, the methods and tools are being applied in several other business units of Bosch, which can now use formal methods efficiently in real projects.
- › FindOut was able to hire 2 consultants for 3 years to develop a suite of visualisations for electrical systems, message passing structures and software structures which has now been integrated into tools for system architects at Scania.
- › Sorbonne Université and École Normale Supérieure's results were integrated by AbsInt into their Astrée industrial analysis tool and their partnerships with Airbus and AbsInt were strengthened. As a result, AbsInt was able to develop the first ever sound static analysis for embedded automotive software targeting the novel multicore AUTOSAR standard.
- › EXPLEO has extended its software code quality assessment and model quality assessment while continuous customer projects in both fields have resulted in a growth of 3 highly qualified employees.

### Flex4Apps Impact story

Software providers increasingly need to focus on the optimisation of their services, including the ability to react to customer preferences. Through its flexible framework and algorithms, the ITEA project Flex4Apps created a full loop that allows companies to offer more complex services while advancing the digital transition.

#### Impact highlights:

- › Nokia 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.
- › In 2021, the success of this project led Unifiedpost to create 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.
- › Flex4Apps enabled the SME DataStories 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.
- › Genode predicts a 200% growth in licence revenue within 2 years, with the smart home market expected to be worth 19 billion euros in Germany alone by 2025.
- › The SaaS tool Survey Anyplace has increased their conversion rate by 33% and their activation by 54%.



## 4.2 ITEA customer orientation

In 2021, ITEA established the Cyber Security Advisory Board (CySAB), which now contains 11 members, and expanded the Smart City Advisory Board (SCAB), now containing nine members. These advisory boards have the goal of creating a continuous dialogue between the customers of a certain domain and the ITEA RD&I Community. Two meetings per advisory board took place in 2021, with the first meeting focused on sharing challenges and the second on connecting with the related RD&I projects of ITEA. A CySAB challenge report and a SCAB challenge report have been issued as a result of the meetings and as input for the ITEA Project Outline (PO) Preparation Days 2021.

## 4.3 ITEA events

One of the other main operations was the organisation of and attendance at events. In 2021, we (co)organised the following events.

### 4.3.1 Cyber Security Day (15 January 2021)

The ITEA Cyber Security Day 2021 gathered customers and cybersecurity-relevant project (partner)s to share challenges, innovative ideas and experiences to improve cybersecurity and overcome challenges in the industry. The aim was to learn from each other, identify new challenges, steer cybersecurity RD&I projects and share innovative results in ongoing and (nearly) completed ITEA projects. Furthermore, this webinar was the perfect opportunity to introduce the ITEA Cyber Security Advisory Board. This online webinar gathered 100 participations from 16 countries. Among the panellists were 5 cybersecurity customers, 5 ITEA cybersecurity projects and 4 ITEA cybersecurity project proposals.

### 4.3.2 AI Call 2020 - project leader briefing webinar (11 February 2021)

In order to support project leaders and technical contacts of the labelled AI Call 2020 projects in the smooth start of their projects, the ITEA Office organised a Project leader briefing webinar on 11 February. During this webinar, participants got an introduction to ITEA and its processes, including tips and tricks for a smooth project start. Furthermore, the ITEA project portal was explained as not all PLs and TCs were familiar with it. Next, they learned how to prepare a Change Request and how to prepare a project progress report or project review. At the end of the session, there was also time for a Q&A.

### 4.3.3 Smart City Day (16 March 2021)

The ITEA Smart City Day 2021 brought cities that want to be at the forefront of innovation together with Smart city-relevant ITEA project partners. The aim was to learn from each other, identify new challenges, steer Smart city RD&I projects and share innovative results in ongoing and (nearly) completed ITEA projects.

This online webinar gathered 173 participations from 27 countries. Among the panellists were 10 city representatives and 7 ITEA projects.

### 4.3.4 Online ITEA PO Preparation Days 2021 - ITEA Call 2021 (13-16 September 2021)

2021 marked 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 2021, which were held from 13-16 September. Like in 2020, it was not yet possible to get together physically with the ITEA Community, so the PO Days were again held online. These second online ITEA PO Days combined four days of informative sessions on ITEA, its upcoming Call and the submission process with the most important element of all: the (work group) discussions on new innovative project ideas. New features this year were the live online pitch sessions and the interactive chat functionality. Also, a record number of Public Authorities were involved in the ITEA PO Days and 9 country information sessions were scheduled.



Although the event attracted fewer participants and generated less ideas than in previous years, the ITEA Community again proved its agility and made the online ITEA PO Days 2021 a success. 287 participants from 17 countries joined the online event. As in previous years, Turkey, the Netherlands and Germany represented the top 3 countries in terms of participation. Thanks to renewed funding opportunities, France again saw a substantial increase in registrations compared to previous years. In addition, participation from Portugal was substantially increased this year. With 60% returning participants and 40% newcomers, the Online ITEA PO Days 2021 confirmed that the ITEA Community keeps on growing and attracting new members while retaining the experienced project partners that can guide them.

### Online ITEA PO Days 2021 in numbers

- > 287 participants from 19 countries
- > 53 project ideas uploaded in the Project idea tool before the event
- > 35 project ideas presented during the online project pitch sessions
- > 44 project ideas presented in the online poster tool
- > 37 online workgroup session held
- > 10 final project idea presentations

As Smart energy has recently been added, ITEA now covers eight key challenges, the others being Smart cities, Smart communities, Smart industry, Smart health, Smart mobility, Smart engineering and Safety and Security. With 8 project ideas out of 53 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 eight project ideas, while the other ideas were equally divided across the other key challenges.

As for the technology landscape, AI remains a big topic in ITEA Call 2021, covered by 35 of the 53 ideas, even though a Joint Eureka Clusters AI Call was organised earlier this year. Other technologies strongly represented in this Call are digital twins, natural language, IoT sensors, UI, robotics and blockchain.

During one of the webinars of the Online ITEA PO Days 2021, best practices were shown by four ITEA projects that received the 2021 ITEA Award of Excellence. They presented their impressive outcomes, impacts and recommendations for future project leaders in an interactive online panel session moderated by ITEA Vice-Chairman Jean-François Lavignon. This year's award winners were BIMy, EMPHYSIS, PARTNER and VMAP.

Turning a physical event into an online event is a challenge, with expectations aligned to a 'normal' physical event. We asked all participants to share their evaluation and suggestions for improvements. With a score of 3.4 on a 5-point scale (where 3 is good and 4 is very good), the online event was still quite well-appreciated. The 2020 Online PO Days showed that it is more difficult to provide networking opportunities when hosting a virtual event. What is missing is the (spontaneous) networking experience and social interaction. Although the focus on networking was prioritised this year by introducing a new chat and messaging system and although an online event has several advantages too, a high number of participants indicated that they really missed 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 will improve the creation of connections between the large international Community of industry, SMEs, start-ups, academia and customer organisations in order to build strong consortia.

By the deadline of 16 November, 23 Project Outlines had been submitted with a total effort of 2571 Person Years. On 20 December, 16 out of the 23 submitted Project Outlines with a total effort of 2227 PY were invited to submit a Full Project Proposal. At the FPP submission deadline of 15 February 2022, 15 FPPs were submitted with a total effort of 2286 Person Years. On 28 March 2022, it will be announced which FPPs will be labelled.



### ITEA Call 2021 evolution (so far)

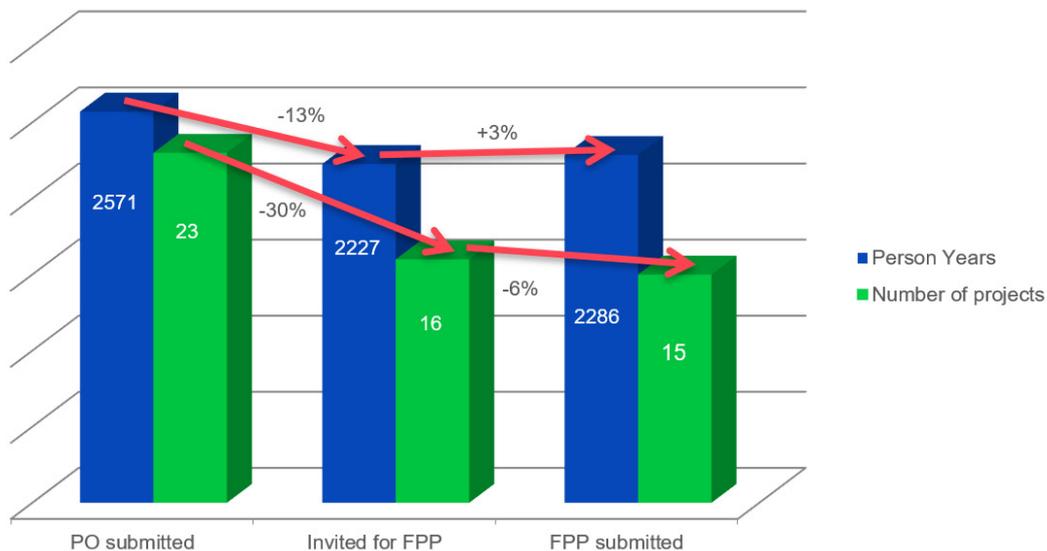
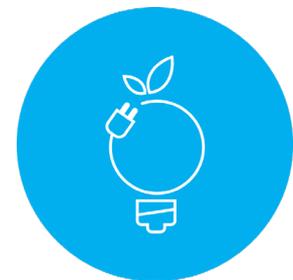


Figure 5: ITEA Call 2021 evolution (so far).

A detailed description of the ITEA Call progress and figures can be found in section **3.2 ITEA Calls progress** of this report.

#### 4.3.5 ITEA International customer and end-user workshop – Smart energy (June 2021)

The 2021 international customer workshop attracted a high level of interest as the first ITEA event aimed at bringing together several energy stakeholders – some new to ITEA – and discussing how the new ITEA challenge on Smart energy could be impacted by potential ITEA projects. This event gathered around 20 major players representing the energy value chain – energy providers, Transmission System Operators (TSO), Distribution System Operators (DSO) and large energy users – and around 20 solution providers (large companies and SMEs) in the energy sector.



The event was organised over three weeks with a kick-off session, four 'challenges sessions' dedicated to the presentation of the needs and pain points of the energy sector players and some brainstorming (sessions) to generate ideas for potential collaborative research projects that could solve some of the challenges expressed during the previous phase. Finally, the customer workshop was concluded with a closing session that presented the summary of the exchanges and a keynote on how to address the energy challenges together. This format was designed to allow for the flexible participation of the attendees and to maximise interactions despite the absence of physical meetings.

The four sessions on the challenges were organised around a central topic that was of common interest for all of the participants of the session. The subjects covered were:

- > 'New usages' to discuss how to benefit from the energy sector transformations – more flexible grids, the development of electric vehicles, the development of simulation – in order to create new business.
- > 'Flexibility' to address the relationship between the electricity market players, congestion management, new businesses, new forecasting tools and trends for IT systems to support the electricity grid.
- > 'Optimisation of energy usage' to share experiences on the best practices to optimise the usage of energy and to discuss how to improve energy efficiency in industrial sectors such as automotive, the forging industry, manufacturing plants, telecom and cloud.
- > 'Multi-energy' to analyse the impact of renewable energy sources – wind energy and photovoltaic energy – and the evolution towards a more complex and distributed energy system.

After all of these sessions, the workshop produced several interesting ideas that may give birth to future ITEA research projects. Some of the ideas were focused on new opportunities generated by the availability of data, the control and simulation of complex and heterogenous systems and the facilitation of transactions between the energy value chain partners.

In addition to the emergence of these solid ideas and some collaborations, the workshop has helped to establish progress towards a shared vision of the research priorities to address the important transformation underway in the energy sector. The participants have developed new connections that will be important as no single player can tackle the current energy challenges alone. In conclusion, this workshop was very valuable in initiating ITEA's activity in this new Smart energy challenge.

#### 4.3.6 Smart City Business Event and Smart City Advisory Board meeting (15 November 2021)

On 15 November, ITEA participated in the Smart City Business Event that was co-organised by the Netherlands Enterprise Agency (RVO) and the Nordics. ITEA has partnered with this event since 2019 as innovation is the key driver for Smart cities, as well as international collaboration between the government, private sectors and academia: the Triple Helix. This year, the discussions focused on how to create climate-neutral cities and the (urgent) actions and investments needed for that. ITEA participated in several workshops addressing the themes of green mobility, sustainable buildings & energy, circularity and digital infrastructure. In addition, this forum provided a great chance to meet with new cities that could be interested in joining the ITEA Smart City Advisory Board (SCAB).

As many of the ITEA SCAB members were present in Barcelona, we also took the opportunity to have a hybrid SCAB meeting with the representatives of seven cities, during which the results of five ITEA smart city-related projects were presented. The interested city representatives and project partners will be brought into contact with each other to further explore how the project results can be used in each specific city.

#### 4.3.7 Cyber Security & Cloud Expo 2021 and Cyber Security Advisory Board meeting (23-24 November 2021)

As customer orientation is one of the main ambitions in ITEA, ITEA targets attendance at several commercial events. This year, we participated in the Cyber Security & Cloud Expo taking place on 23-24 November 2021 in the RAI Amsterdam. This event provided a perfect opportunity for our project partners to present their results to potential customers and for other attendees to discover the latest trends and developments in the security solutions domain. Six ongoing or recently completed ITEA projects (CyberFactory#1, DEFRAUDify, PARFAIT, SCRATCH, TESTOMAT Project and XIVT) showcased their (intermediate) results. The ITEA Office was also present to promote ITEA in general and the ITEA Cyber Security Advisory Board in particular. In the afternoon of 23 November, the second Cyber Security Advisory Board (CySAB) meeting was also held in a hybrid way.

The hybrid CySAB meeting gathered seven CySAB members and seven ITEA projects and was the first occasion to show the outcomes of the ITEA cybersecurity-related projects to the members. This meeting went the same as the SCAB meeting: the interested CySAB members and project partners were brought into contact with each other to further explore how the project results can be used.

#### 4.3.8 External events and activities to promote ITEA

During 2021, the Presidium and the ITEA Office representatives also attended various additional external events and meetings to promote ITEA. Highlights included:

- **Online Eureka Clusters AI Call 2021 Brokerage event** (22 April 2021)  
 More information on this event can be found in section 2.3 Eureka and ECP activities.
- **B2B Software Days – Eureka webinar** (12 May 2021)  
 The B2B Software Days are organised in Austria on a yearly basis. ITEA was invited to present the Eureka Clusters and AI Call 2021 at this event. ITEA Chairwoman Zeynep Sarılar presented the common presentation on Eureka Clusters and the AI Call 2021.
- **Global Innovation Summit Austria** (18-20 May 2021)  
 More information on this event can be found in section 2.3 Eureka and ECP activities.

> **Meeting with DLR** (18 June 2021)

On 18 June, ITEA Chairwoman Zeynep Sarilar and ITEA Office Director Jan Jonker had an online meeting with Irene Gerharz, Maren Dietrich and Holger Stegemann from DLR. Andrea Seifert has moved from DLR to BMBF and has been replaced by Irene Gerharz. Meanwhile, Maren Dietrich has been assigned the responsibility for ITEA projects in DLR. With a managerial role, Holger Stegemann is responsible for ITEA in DLR. This meeting was prepared to introduce ITEA 4 and discuss any potential needs for better collaboration between ITEA and DLR.

> **Meeting with Singapore** (17 August 2021)

On 17 August, ITEA Office Director Jan Jonker had an online meeting with Jan Rubiano and Shen Ye from Singapore. The meeting was mostly dedicated to the introduction of ITEA and the Eureka Clusters, as Jan Rubiano recently started working for the Singaporean government. Jan expressed great interest in ITEA, specifically the involvement of large industry combined with SMEs and content topics such as AI.

## 4.4 ITEA stakeholder satisfaction surveys

Together, the different stakeholders of ITEA create the strong ITEA Community that forms the central point of the ITEA programme. As quality is of paramount importance to ITEA, the opinions, ideas and experiences of the ITEA Community are highly valued as they allow ITEA to keep improving. To collect all of this information, ITEA conducts several surveys yearly:

- > **Project leader satisfaction survey**, sent to project leaders after the completion of a project, covering all of the different processes of a project and the different elements of the ITEA programme. The 2021 results per topic are shown in comparison with 2020 in the figure above (where 3 = good and 4 = very good). All processes or communications are well-appreciated, especially the project reviews and Office support.

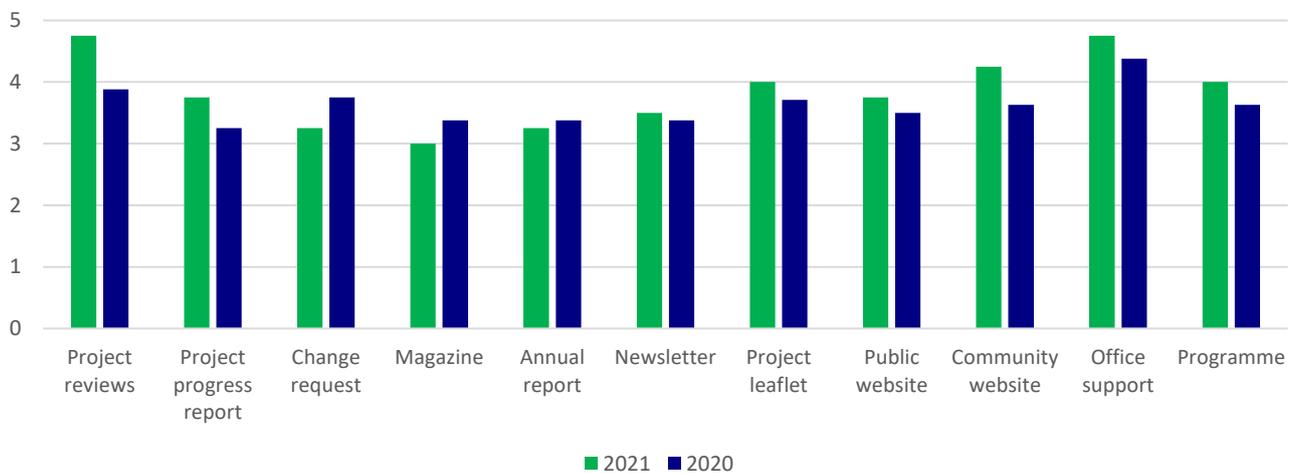


Figure 6: Results of the project leader satisfaction survey, 2021 vs 2020.

- > **PO submission survey** (ITEA Call 2021), sent to all Project Outline (PO) leaders, technical contacts and country coordinators, covering all topics of the PO stage. Overall, the PO submission process was well-appreciated, as usual. PO leaders gave a score of 4.19 (compared to 3.86 in 2020). Technical contacts and others gave a score of 3.86 (compared to 3.82 in 2020). The coordination between (new) partners seemed to be the biggest challenge for both PO leaders and technical contacts.
- > **FPP submission survey** (ITEA 3 Call 7), sent to all Full Project Proposal (FPP) leaders, technical contacts, work package leaders and country coordinators, covering all topics of the FPP stage. The FPP submission process was well-appreciated with another very high score of 4.03 (out of 5.0) from FPP leaders and 3.87 from the technical contacts.

Based on the submission process surveys, several improvements have been or will be made:

- A simplified online signature of the DoA has been introduced.
  - The tasks and partner contributions will be moved back to the Work Package description.
  - The solution concept will be analysed with ITEA STG experts.
- › **ITEA event surveys**, sent to all participants of an event:
- *ITEA International customer workshop on Smart energy 2021*. This year's customer workshop took place online again and was evaluated with a score of 3.7 out of 5.0. 82% of the respondents could see opportunities for their organisation resulting from the workshop. An important takeaway for the next edition is that a little bit more time should be reserved for brainstorming new ideas, should this take place online again.
  - *Online ITEA PO Preparation Days 2021*. This year, the PO Days scored 3.4 out of 5.0, which was close to the 3.5 score of 2020. The ITEA PO Days 2021 needed to be organised online again due to the COVID-19 pandemic and, although we improved the (one-to-one) networking possibilities based on the feedback from 2020, it was still considered difficult to interact with the other participants; there is a real desire to have physical PO Days again and we really hope that this is feasible in 2022.
- › **Eureka Impact Assessment 2021**, sent to all project leaders and technical contacts of projects that finished in 2019 and 2020. According to these surveys, all projects achieved their objectives (or partially for two out of 25 responses) and 64% contributed to the development of technical standards. At an organisational level, 87% of respondents indicated that their organisation was able to successfully achieve its intended goals in the project; the remaining 13% indicated that they partially achieved these. In addition, 92% indicated that the project had an RD&I/technical impact for their organisation in terms of patents, pilots, demonstrators and scientific results and 93% confirmed that the project resulted in collaborative results and future partnerships. The added value of the international cooperation for their project was rated 75 on a scale of 100. Finally, improvement suggestions were made, e.g. to better align funding decisions/budgets/processes, shorten the time from the project idea to project start and create post-project introductions to B2B partners or funders for scaling.

Results of each survey are discussed within the ITEA Office and issues are resolved or further investigated. In this digital era in which you may receive surveys for (too) many interactions you are involved in, ITEA promises that this is not only an administrative step but truly a way to make your voice heard in order to further improve the ITEA programme and facilitate your participation in successful projects.

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## 4.5 ITEA press coverage

In 2021, ITEA and its projects were mentioned several times on external websites and in press publications. Thanks to the collaboration with the project leaders and partners of the award-winning projects BIMy, EMPHYSIS, PARTNER and VMAP and the valuable advice of Bosch, the awards were well-covered and the press was invited to a special media Q&A. Improvements still have to be made as no national newspaper covered a news item on ITEA (projects), but this approach was already a next step in the right direction. The news item issued by the ESI Group was especially well-covered on many websites. In addition to the award-winning projects, the I2PANEMA project achieved good coverage for their news item on active noise control in harbours, for which project partner Fraunhofer was awarded the CNA innovation prize 'Intelligence for Transport and Logistics'.

In total, there were 64 publications from 52 bureaus and 12 countries.

We have excluded event announcements for the Eureka events, the ITEA customer workshop 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 at: <https://itea4.org/press-coverage.html>