

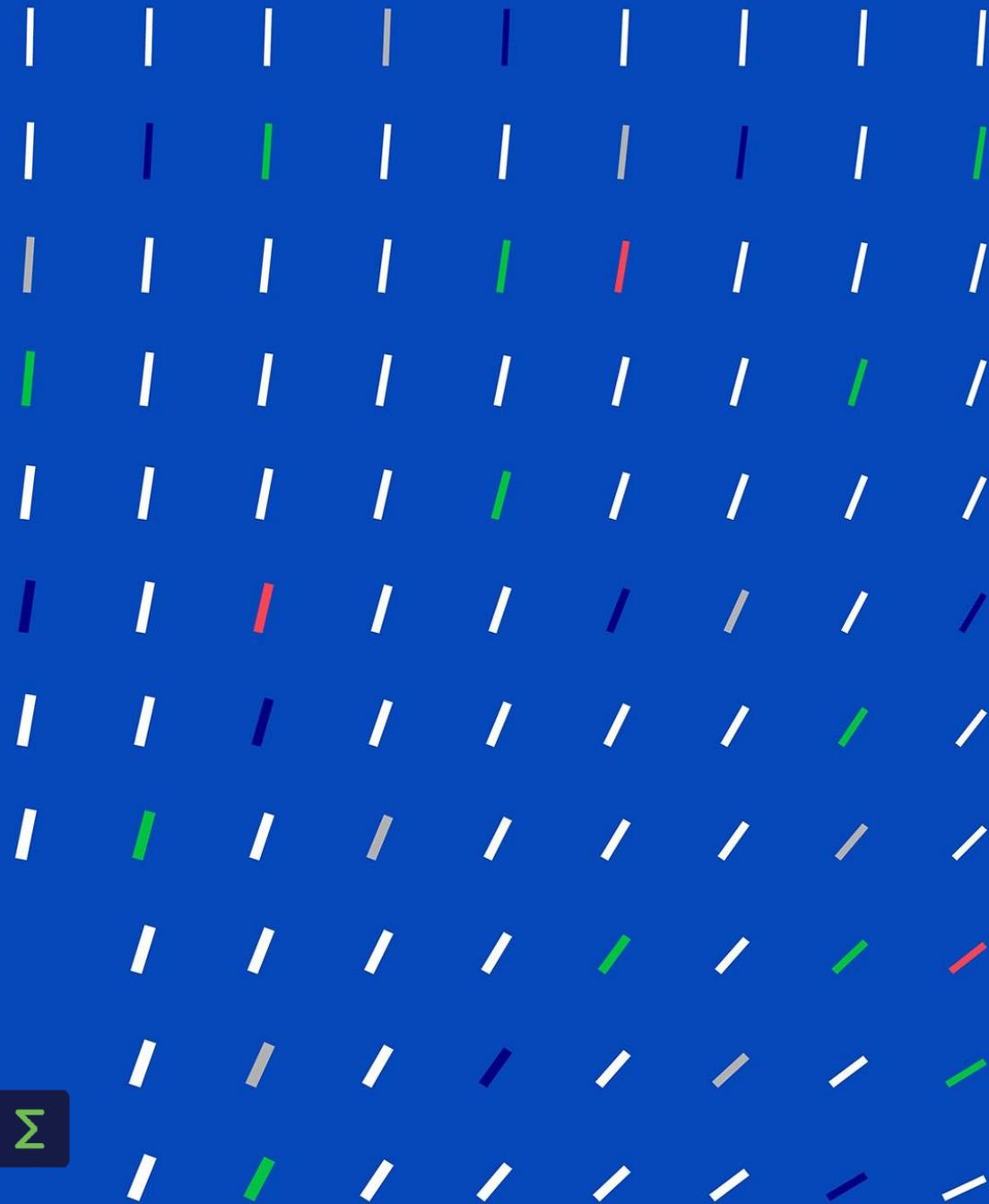
ITEA Award of Excellence winners with Belgian participation



Status December 2023



ITEA 4 is the Eureka Cluster on software innovation



The background is a dark, futuristic digital landscape. It features a grid of microchips, some of which are glowing with small yellow lights. In the center, there is a glowing white wireframe brain. Below the brain, there is a teal-colored data visualization consisting of many vertical bars of varying heights. The overall aesthetic is high-tech and innovative.

Innovation

SAMUEL

SAMUEL

An intelligent platform for additive manufacturing

Additive manufacturing (AM), or 3D printing, rapidly transforms digital designs into physical products, enabling customization and efficient prototyping. SAMUEL addresses challenges of certified production, cost reduction, innovator awareness, and intellectual property protection, ensuring reliable and trustworthy AM expertise.

Start date – End date

Sep 2019 - Nov 2022

Website

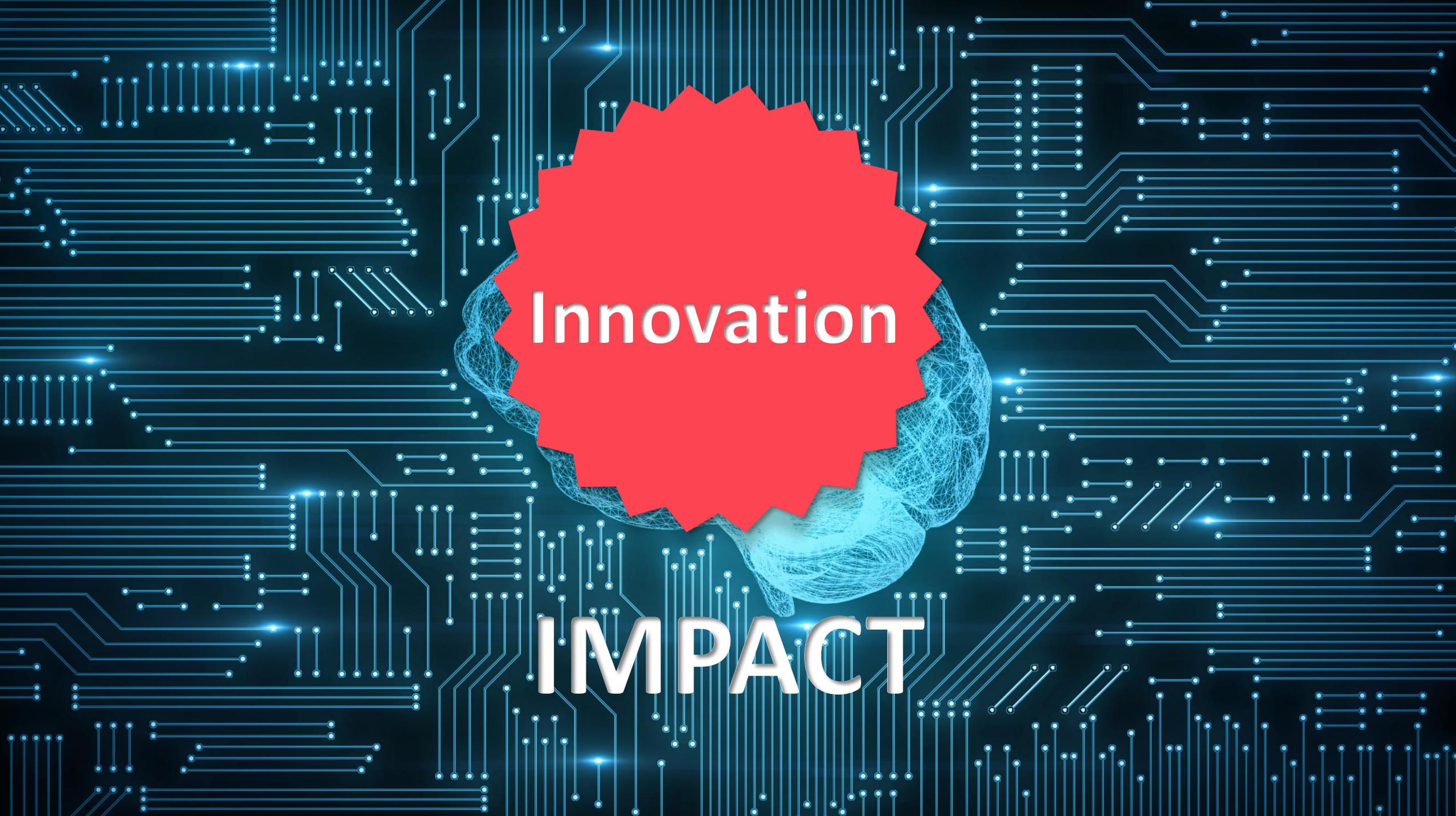
<https://itea4.org/project/samuel.html>



SAMUEL

Examples of impact highlights

- SAMUEL offers ML models reducing AM build time estimation errors (<10%), with a 67% reduction in design errors and ~20% manufacturing error reduction.
- SAMUEL enables manufacturing cost reductions, particularly benefiting SMEs by providing affordable AM options. It contributes to the growth of the global AM market, offering new business opportunities.
- SAMUEL expands platforms, aids AM suppliers, and introduces data valorisation with AI models for long-term competitiveness in AM.



Innovation

IMPACT

IMPACT

Healthcare made more efficient, accurate and cost-effective

Winner ITEA
Award of
Excellence
'Innovation'
2022

Healthcare faces many challenges including improving personalised patient treatment and working more cost effectively, while the demand is growing, staff capacity is declining, and new clinical and technological developments succeed each other quickly.

IMPACT centered around data intelligence as a solution to the combination of personalisation and multidisciplinary work. The team focused on the question which automations and improvements can benefit the individual patient and the medical team surrounding them, in clinical uses cases on cardiac treatment, liver oncology and brain oncology.

Start date – End date

Oct 2018 - Sep 2021

Website

<https://itea4.org/project/impact.html>

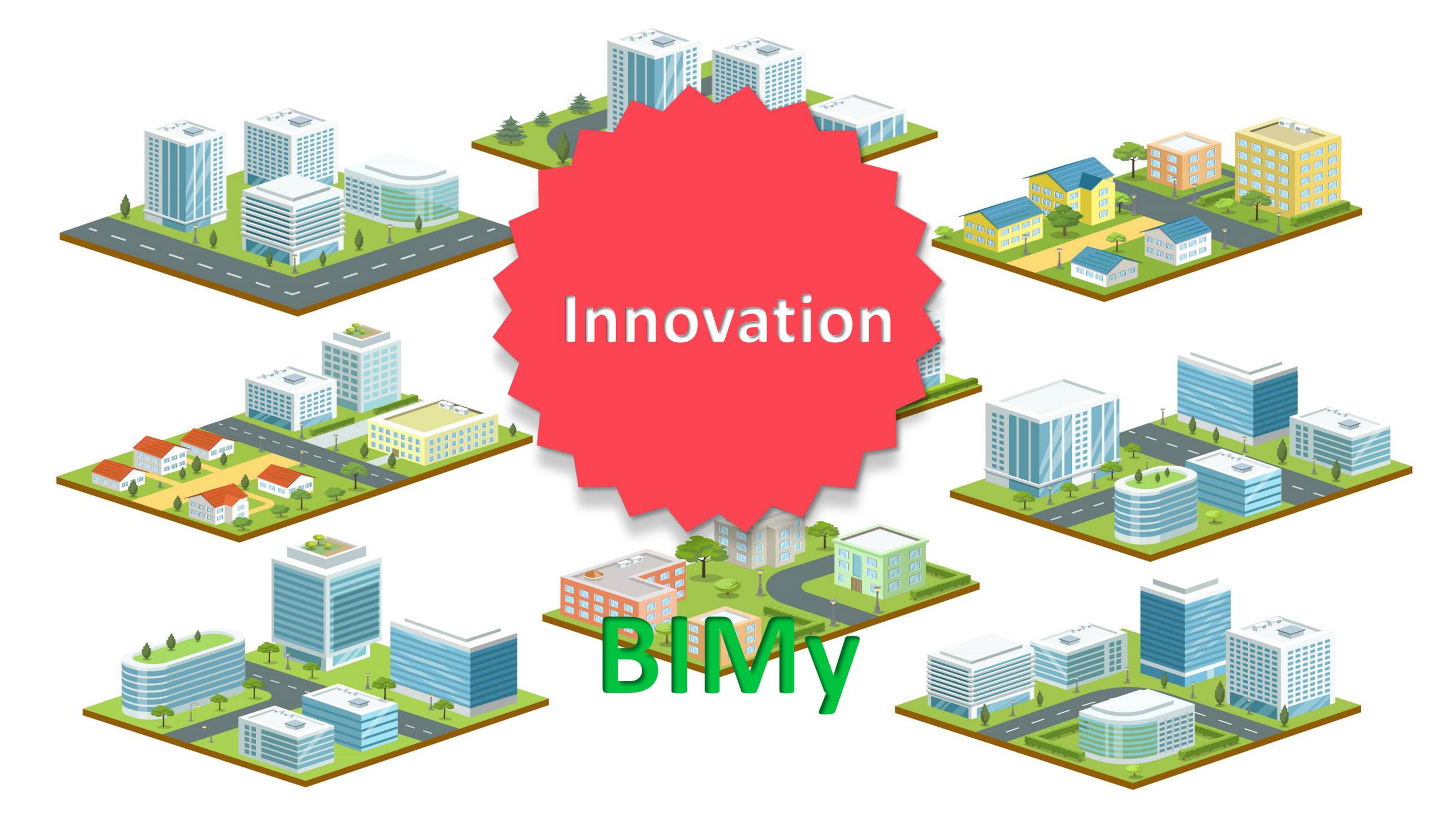
<http://www.impact-itea-project.eu>



IMPACT

Examples of impact highlights

- Data analysis for clinical business intelligence has been accelerated, reducing the time needed for data analysis to less than five minutes, which is a tremendous improvement compared to the days or weeks it previously took to retrieve and manually combine data.
- The outlining of tumour tissue during surgical planning has been improved, allowing the margin for tumour excision to be reduced by 20% so that less healthy tissue is removed.
- HEARTguide has reduced procedure time by 30%, meaning the use of 25% less x-ray contrast agent and 14% less radiation exposure for patients.



Innovation

BIMV

BIMy

An innovation engine for integrated BIM and GIS

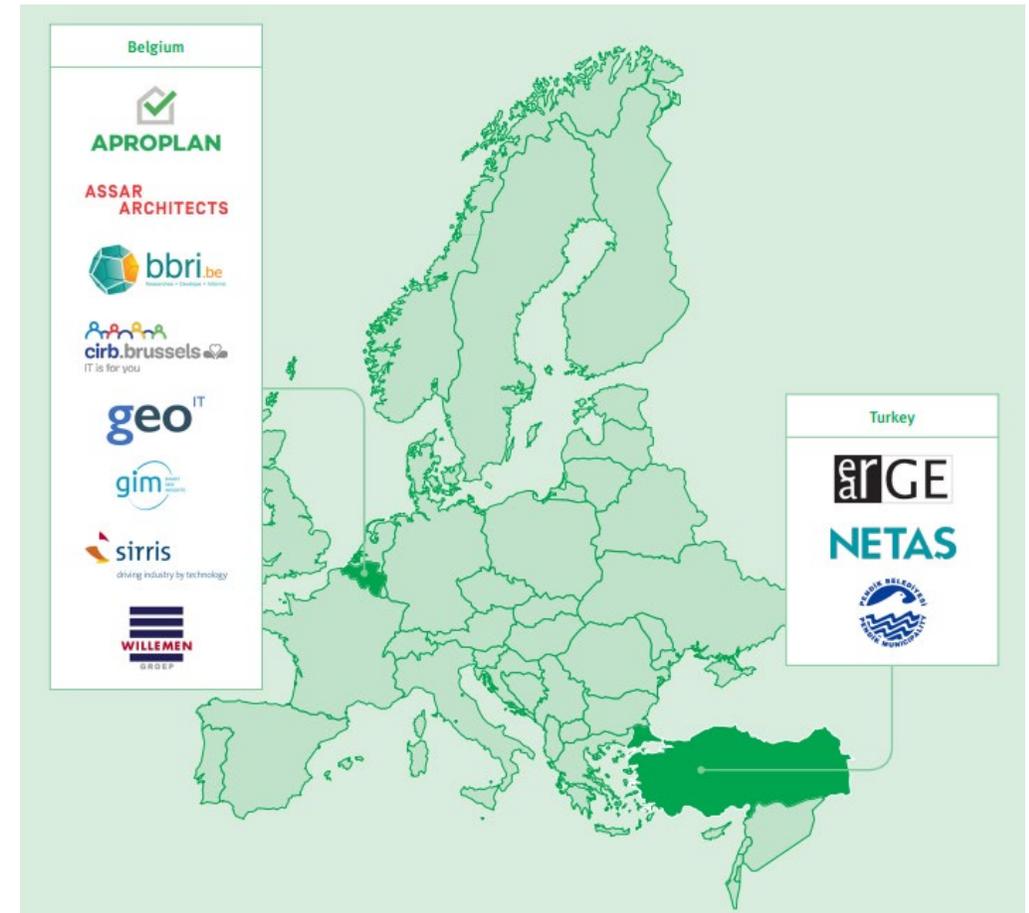
BIMy learned how to create a digital model of a city and how to use this model for different purposes. It created a shared space for digital representations of construction projects in their environments, enabling collaboration between multiple stakeholders within the Smart City domain and paving the road for new applications.

Start date – End date

April 2018 – March 2021

Website

<https://itea4.org/project/bimy.html>



BIMy

Examples of impact highlights

- For building permits, it allows guidelines to be modelled and applied to BIM models, accelerating lead time by avoiding the need to apply for a permit to know whether a building will fit a location and its urban regulations. In addition, fully digital access to building permit data speeds up its approval process. It facilitates reviews and updates in the building lifecycle thanks to centralised information and documentation for permits processing, automated validation and digital update during the permit process and public enquiry.
- For fire safety, BIMy allows inspectors to ensure that a building complies with regulations, for example, by consulting a 3D model for semantic properties or by annotating a 3D model during inspection.
- Similarly, the combined BIM/GIS data (possibly enriched with IoT data) can be used in crisis management to identify evacuation routes and train citizens by using virtual or augmented reality, e.g. to learn how to escape safely during an earthquake. Also, to ensure that the building is tested by simulating earthquake and other disaster scenarios, akin to the 'digital twin' paradigm.
- For the circular economy and recycling, the project enables the modelling and mining of reusable materials within a building and the option to design buildings with future circularity in mind.
- Proper account can be taken of hazardous materials and materials that require special attention when handling prior to repurposing, refurbishing or demolishing a building. Quantities and locations can be calculated in advance and appropriate preventative measures can be taken.

A doctor in a white coat is pointing towards a large red starburst shape in the center of the image. The starburst contains the word "Exploitation" in white text. The background is a blurred image of a doctor's face and hands. Surrounding the central text is a network of white lines connecting various blue circular icons representing medical and technological concepts.

Exploitation

PARTNER

PARTNER

An innovation engine for integrated BIM and GIS

PARTNER developed a common architecture for health data management and visualisation to support the optimal patient journey for chronic diseases through the health system (including at home) for appropriate personalised care. Thanks to this, data and information collection is continuous, seamless and patient-centric and decision-making is less costly for hospitals and faster for patients.

Start date – End date

Oct 2017 – Dec 2020

Website

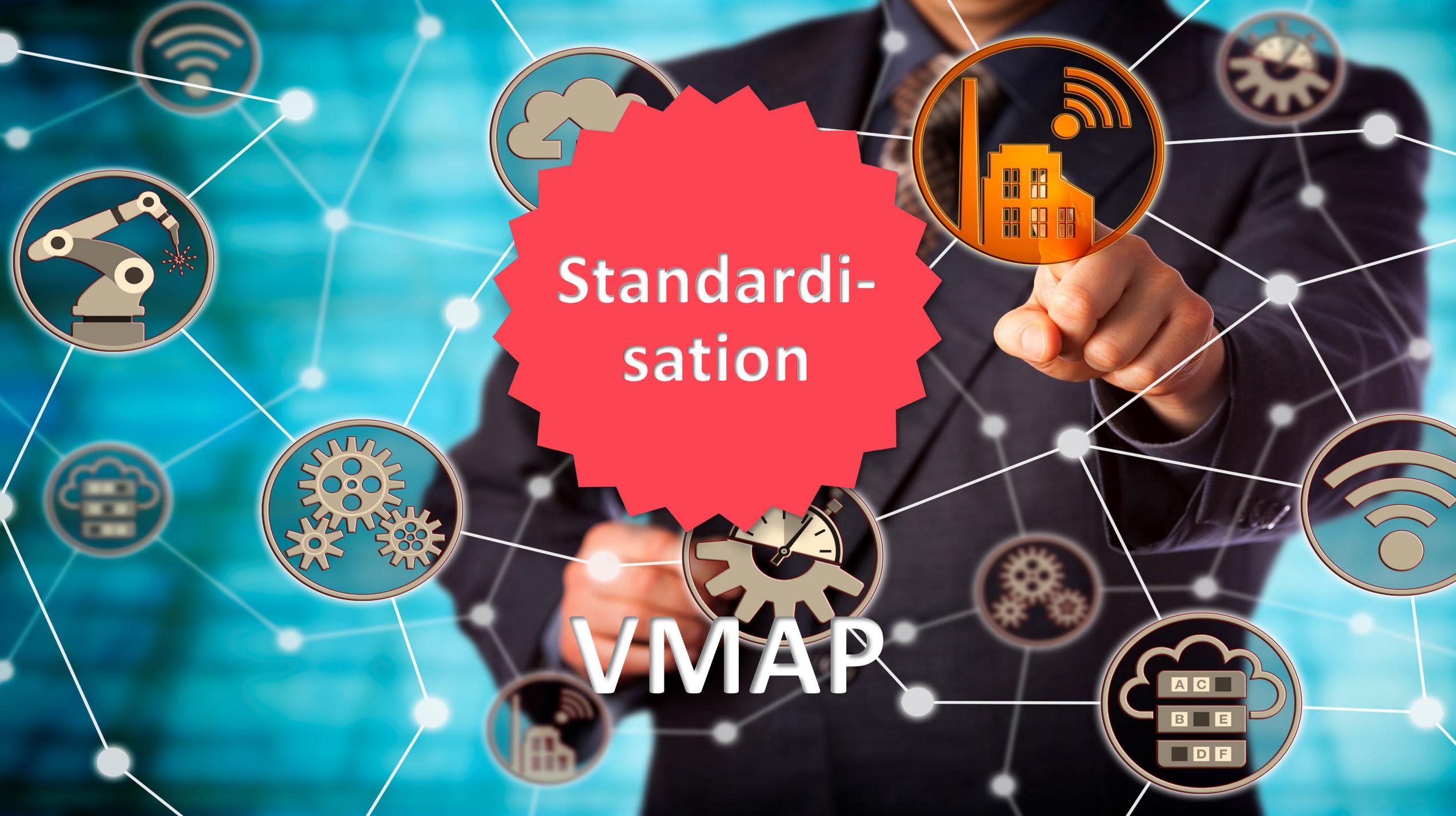
<https://itea4.org/project/partner.html>



PARTNER

Examples of impact highlights

- PARTNER demonstrates that a patient-centric approach with an optimised collaborative care team leads to greater efficiency – up to a 10% improvement compared to traditional workflows – and a knock-on effect of lower healthcare costs.
- For patients, the PARTNER approach should result in better health outcomes and, above all, a higher quality of life even when ill.
- The successful collaboration in PARTNER has resulted in clear commercial opportunities for the consortium; every contributor involved has released new products and services, ready to be installed in several hospitals for further trials.
- Barco's Synergi represents a new business case and has allowed Barco to push further into the health domain. Synergi can lead to a significant improvement in the efficiency of the multi-disciplinary team meetings, as well as a significant reduction in the time between the referral of the patient and the commencement of treatment.
- For iClinic in Canada, participation in the PARTNER project led to three additional full-time employees. In 2021, €200,000 of additional revenue was achieved and much more is expected in the future.
- MEDrecord licensed its platform as a service, enabling four additional sales in 2022 based on the developments done within the PARTNER project. MEDrecord has also become a Microsoft partner in order to sell the MEDrecord APIs via the Azure marketplace.
- The PARTNER experiments impacted the nature of SOPHEON's innovation management products: they are being launched to the global market and already have thousands of initial users.
- Barco Healthcare had two startup initiatives, one of which was Synergi. In addition, ETRI also transferred the technology to DATAIZE, a Korean startup.

A person in a dark suit and tie is pointing their right index finger towards a central red starburst. The background is a blue-toned image of a person in a suit, overlaid with a network of white lines and dots. Various circular icons are scattered around, including a Wi-Fi symbol, a gear, a factory, a robotic arm, a cloud with gears, a clock with a gear, and a cloud with three boxes labeled A, B, and C.

Standardisation

VMAP

VMAP

Enhances interoperability in virtual engineering workflows

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

Start date – End date

Sept 2017 – Oct 2020

Website

<https://itea4.org/project/vmap.html>



VMAP

Examples of impact highlights

- The VMAP project has created the world's first CAE workflow interface standard for integrating multi-disciplinary and multi-software simulation processes in the manufacturing industry. This standard is vendor-neutral, cost-free and completely open. The first public version of the standard was announced by the VMAP project in January 2020, before the end of the project.
- As a result of VMAP, Philips boosted the innovation speed of highly complex parts by almost 50%.
- The time spent on strength assessments in the moulding of plastic parts by RIKUTEC Richter Kunststofftechnik in Germany has been reduced by 42%.
- The set-up time for virtual process chains for lightweight automotive components with composites within a prominent German car manufacturer fell by 40%.
- The VMAP Standards Community e.V. (VMAP SC) was created in December 2022 by 16 founding members and it currently contains more than 150 entities, including large players such as Bosch and Philips, and has good links with other standardisation groups such as Modelica/FMI, the European Material Modelling Council and the ISO STEP 242 community.

A futuristic highway with a glowing blue circuit board pattern on the ground and a car covered in binary code. The scene is set against a white background with a clear sky. The highway has multiple lanes and a guardrail on the left. In the distance, there are overhead signs and a building. The overall aesthetic is high-tech and digital.

Special
Vice-Chair
Award

EMPHYSIS

EMPHYSIS

The missing link between digital simulation and embedded software

Winner ITEA
Award of
Excellence
'Special VC'
2021

EMPHYSIS delivered the new, global standard for smart industry, "eFMI standard" (embedded Functional Mock-up Interface), for digital model exchange among manufacturers.

It accelerates the development of embedded software, with a focus on automotive industry, thanks to which up to 90% gains can be made in productivity. Another successful outcome is the official approval of a new Modelica Association project to further develop, standardise and promote eFMI.

Start date – End date

Sept 2017 - Feb 2021

Website

<https://itea4.org/project/emphasis.html>

<https://emphasis.github.io/>



EMPHYSIS

Examples of impact highlights

- A 25% reduction in run-time performance was achieved and 25% greater memory consumption versus state-of-the-art manual code.
- In addition, FMU requires 9% less data memory.
- The knock-on benefit for productivity saw a reduction in development time for five use-cases, including by 93% for a PID controller, 92% for a drive train controller and 88% for a slider crank controller.
- eFMI's versatility was also demonstrated: the air system use-case required the same modelling time but saw a radical drop in embedded implementation and validation for a 52% overall increase in productivity.



**Impact &
Exploitation**

Applications

Storage

Sharing

Flex4Apps

Platform

Infrastructure

Flex4Apps

Deep customer understanding, backed by data

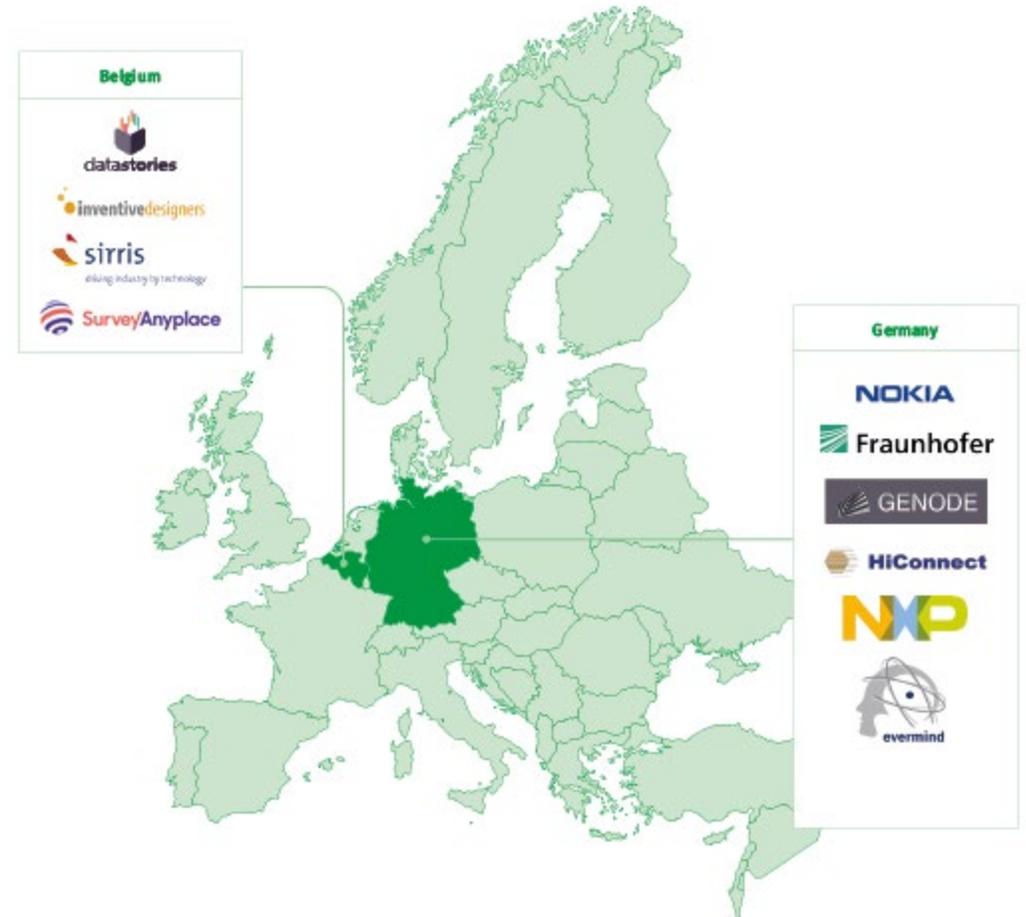
Software providers increasingly need to focus on the optimisation of their services, including the ability to react to customer preferences. Through its flexible framework and algorithms, the ITEA project Flex4Apps creates a full loop that allows companies to offer more complex services while advancing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

Start date – End date

Nov 2016 – Oct 2019

Website

<https://itea4.org/project/flex4apps.html>



Flex4Apps

Examples of 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.
- For Unifiedpost, the success of this project has led in 2021 to the creation of a dedicated data warehouse and machine learning project team of 15 persons, expanding on the original ideas and assisting in the rapid growth of the company.
- 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 two 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%.



Special
Vice-
chairman
Award

MOS2S

MOS2S

New forms of engagement in entertainment and society

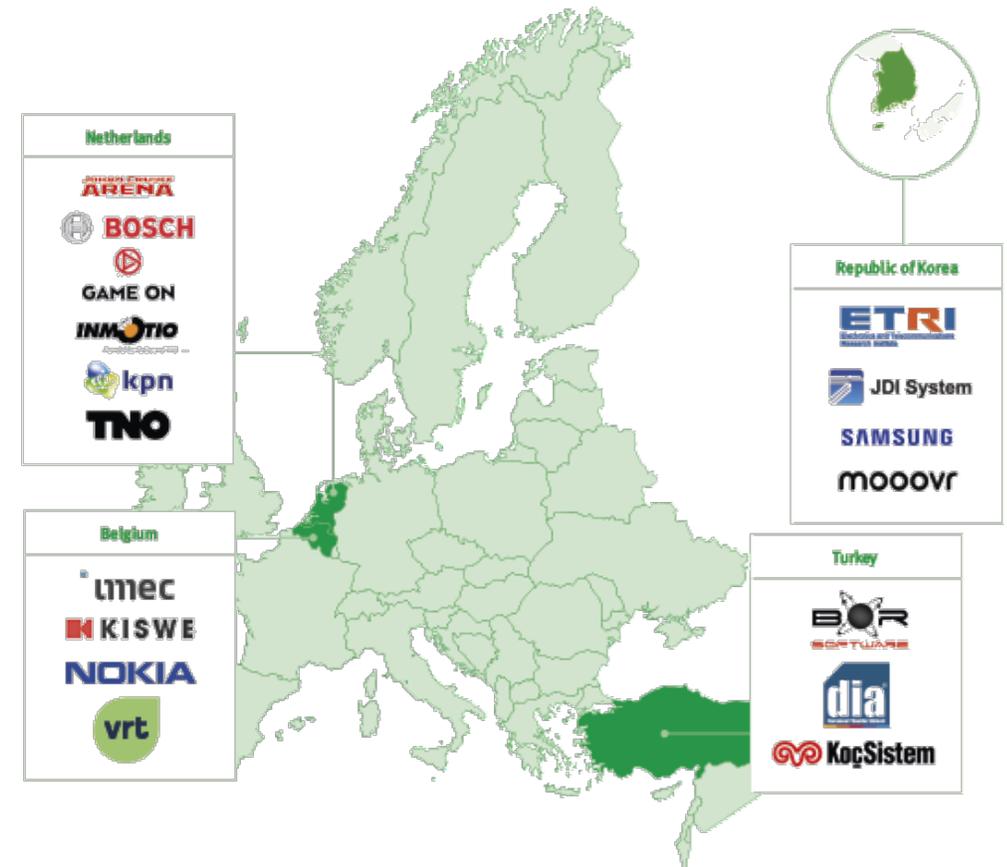
Engagement and personalised experiences are getting increasingly important nowadays. In society, city representatives no longer take decisions by their own and in the entertainment business, everybody can become a producer of content. To bring this engagement MOS2S has created world-first ways to engage citizens and audiences of live events.

Start date – End date

Oct 2016 – Sept 2019

Website

<https://itea4.org/project/mos2s.html>



MOS2S

Examples of impact highlights

- For the first time in the world, a football match in the Johan Cruijff ArenA was broadcasted in real time, with only 0.3 seconds delay from the pitch in Amsterdam to a viewing area in South Korea.
- Since the MOS2S project, Kiswe has been working with multiple sports leagues, entertainment and media companies worldwide like K-POP group BTS, NBA, Universal Music Group and the Tour of Flanders.
- GameOn's video technology has been licensed to 25 European clubs, with a revenue of almost EUR 700 thousand for GameOn in 2019 (versus roughly EUR 80 thousand in 2016).
- The Inmotio Performance Centre is being rolled out for all 18 teams of the Dutch Eredivisie, potentially leading to millions of users following completion.
- MOS2S's technology was selected, out of 209 applications from 39 countries, to be demonstrated during the Eurovision Song contest of 2020.



**Special
Vice-
chairman
Award**

Reflexion

Reflexion

Nourishing high-tech manufacturing with valuable high-quality data

Reflexion assisted high-tech systems companies in using operational data to improve the development lifecycles, maintenance and troubleshooting of products. Using open-source frameworks, self-learning and data-analysing systems were developed that accumulate useful knowledge during a product's lifetime, resulting in a faster time-to-market, lower costs and greater competitiveness. They created a full digital loop.

Start date – End date

Sept 2015 – Feb 2019

Website

<https://itea4.org/project/reflexion.html>



Reflexion

Examples of impact highlights

- All project partners have improved their data pipelines to the point of returning only useful information: the gathered information can now be used to automatically enhance future product design.
- Océ has improved their mean time to repair (MTTR) for all new machines by 50%, while another saw a 30% reduction in time spent troubleshooting
- For partners Barco and TNO, new business models are expected to already be worth 20 million € in the next 5 years
- 25 data science jobs have been created within the Reflexion project partners Siemens Industry Software developed a potential service model based around simulated failures, which can predict future issues even in the absence of 'real' data
- Philips and Barco can now create medical equipment with a higher uptime, meaning the possibility to diagnose or operate on more patients per day
- SynerScope's visual-analytical tooling enabled their customer Stedin to plan in the end with a 99,5% accuracy first-time-right smart meter installation visits, saving an effective 40 FTE in the smart meter rollout for the Netherlands.



Business
Impact

BENEFIT

BENEFIT

Advancing evidence-based medicine for better patient outcome

The BENEFIT project tackled three main challenges: the societal aspect of coping with the increasing number of minimally invasive image-guided interventions; the economic dimension of delivering care with quantified targets in terms of quantity, price and quality of care; demonstrating the technical feasibility of an integrated infrastructure that includes all relevant imaging and data sources, the modelling, analysis and presentation of these data and the integration into a Clinical Decision Support System. Current diagnostic and therapeutic solutions do not offer the flexibility, quality and integration to automatically extract all the relevant quantified data and process flows. The ITEA project BENEFIT aimed to support clinicians in selecting the optimal diagnostic and treatment pathway for patients.

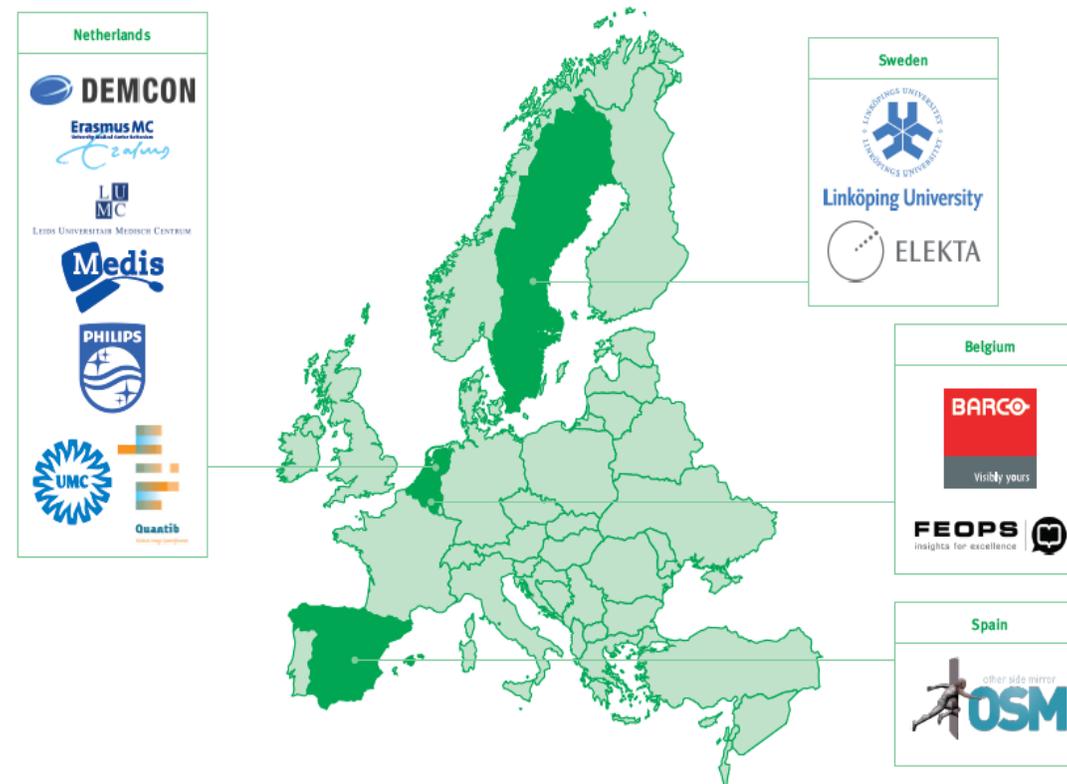
Start date – End date

July 2014 - Dec 2017

Website

<https://itea4.org/project/benefit.html>

Winner ITEA
Award of
Excellence
'Business Impact'
2018



BENEFIT

Examples of impact highlights

- Elekta gained CE and FDA approval for its Leksell Gamma Knife ICON system with Cone beam CT (CBCT). By September 2019, 107 systems have been installed and are clinically in use while 200 existing systems can be upgraded worldwide. The planning time for test cases is reduced significantly by around half.
- Linköping University (LiU) in Sweden has published a paper for functional MRI in PNAS (Proceedings of the National Academy of Sciences) in 2016, which has been covered by Science, The Economist, The New York Times, has been downloaded over 200,000 times and received over 1800 citations.
- In total, the project partners applied for 7 patents.
- The Belgian SME FEops gained CE approval for its TAVIguide product and secured an investment injection of €6m for the FEops HEARTguide™. FEops has grown from 4 to 15 employees.

BENEFIT

Examples of impact highlights

- The Dutch SME Medis gained CE and FDA approval for its analysis that calculates pressure drop from X-ray images leading to a reduction of the excessive use of stents and the need for a disposable pressure wire of €500-1000, and thus saving costs.
- At the end of 2019, Philips sold over 250 copies of its new commercial tool AneurysmFlow for treating cranial aneurysms. Philips also created an automatic 3D detection of liver tumour feeding vessels, boosting detection accuracy by 26% and resulting in at least 20% less recurrence than with 2D feeder detection.
- The Dutch SME Quantib gained CE and FDA approval for its brain analysis software and secured €4.5m in fresh funding to support the company in its international expansion ambitions. Between July 2014 and end of 2019, Quantib grew from 6 to nearly 30 employees, developed 4 products including certification, has installations in over 20 countries and initiated partnerships with 3 top medical university centres in the Netherlands.



Business
impact

C³PO

C³PO

Democratising city planning

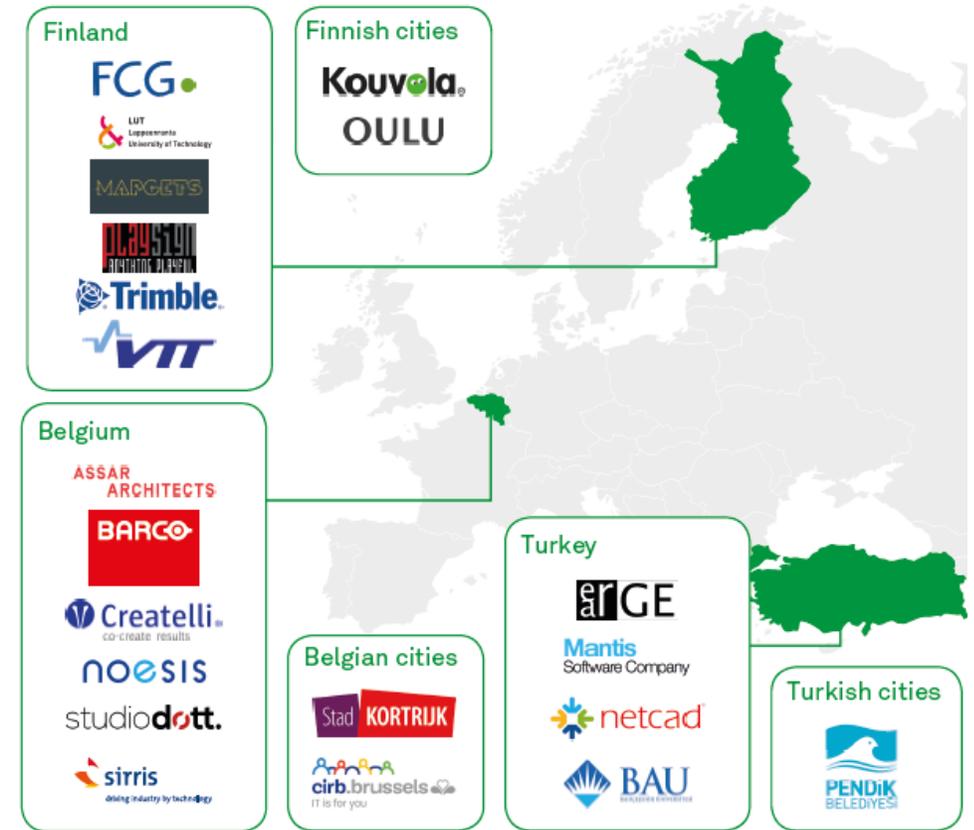
The ITEA C³PO project has found ways for city planners and designers to consult citizens throughout the urban transformation process and thereby give citizens a better say in urban developments. The aim of the project was to set up a common digital platform that connects all the tools for collaborative urban development.

Start date – End date

Dec 2014 – Nov 2017

Website

<https://itea4.org/project/c3po.html>



C³PO

Examples of impact highlights

- Thanks to the enhanced collaborative capabilities developed by Noesis in the C³PO project, aerospace and automotive engineers from different teams worldwide benefit from the possibility to share engineering workflows, data and knowledge related to common design projects, enabling them to improve product performance by 10% or more and save on average over 30% in engineering time.
- For Studio Dott, the project gave access to a new market of citizen's involvement and this is reflected in a projected revenue growth of €1.7 m within 5 years.
- The resulting demonstrator TCAVE helps Barco to sell its 'Group VR' solutions to the market. Barco's annual revenue on this type of product is about €20 m. In addition, it will also further help Barco in commercialising other solutions such as PowerWalls and CANVAS, the latter addressing a new market segment, the Architecture, Engineering and Construction industry, where Barco expects annual growth of about 10% in the coming 3-5 years.
- The new solutions developed by Mantis pushed up their annual revenue by almost 15%. The know-how has also been used in other projects after C³PO.
- Netcad developed Netigma and Netcad Digital Universe which are marketed and sold in Turkey and in the Middle East region yielding in a revenue increase of 30%. Netigma is used extensively by local authorities (1000+ municipalities).
- The project also supported FCG's expansion in three channels of its digital business: solution development, platform economy and SDK sharing. Between 2018-2022 this will result in an annual revenue growth of 5%. During C³PO, a computer scientist was hired who finalised his MSc in support of the project.



kW
Data Analysis



Green Energy



225
kW

Data Analysis



Innovation



Water Consumption



5310
lt

Data Analysis

FUSE-IT



FUSE-IT

Enhanced connectivity & security for building management at lower costs

FUSE-IT addressed the need for sustainable, reliable, user-friendly, efficient, safe and secure Building Management Systems in the context of smart critical sites, like hospitals. From a site management perspective, it solves the dilemma of efficiency and security in intelligent buildings. At the user level, a smart unified building management interface enables the daily monitoring and control of a building, while a full security management interface enables the supervision of both physical and logical security throughout the premises. And at the end-user level, this can save both energy and lives.

Start date – End date

April 2018 – March 2021

Website

<https://itea4.org/project/bimy.html>



FUSE-IT

Examples of impact highlights

- A new (and misunderstood) topic when the project idea was first introduced back in 2013 was the protection of smart infrastructures against combined cyber and physical threats. This now appears in the top three areas of investment by public and private actors. From this perspective, FUSE-IT has been a pioneer project, enabling the consortium members to take a strategic lead.
- Since 2017, about €48 million in revenue has been reported in direct relation to the project results. The most striking commercial successes include:
 - 17 system integration operation contracts in the field of smart building management and optimisation.
 - 25 contracts won in the field of critical infrastructure protection against cyber and physical threats.
 - the successful market introduction of a start-up company delivering SaaS platform services for enhanced control and management of sensitive building information.
 - The project has led to the acceptance of four patents.
 - Airbus CyberSecurity has been awarded a €740,000 contract to fulfil risk assessment surveys on 14 sites of Airbus Defence and Space in Spain, France, the UK and Germany and a contract worth €500,000 to secure a data centre organisation against cyber and physical threats. In addition, Airbus CyberSecurity has been awarded a multimillion-euro contract with an important gas transportation company, an integration contract for the protection of a large data centre's infrastructure and several contracts with large energy production utilities and distribution system operators in the UK, France and Germany.
 - The FUSE-IT project allowed Niko to grow faster and to become more attractive to other companies. The team is still growing and has had double-digit growth during the last five years.