

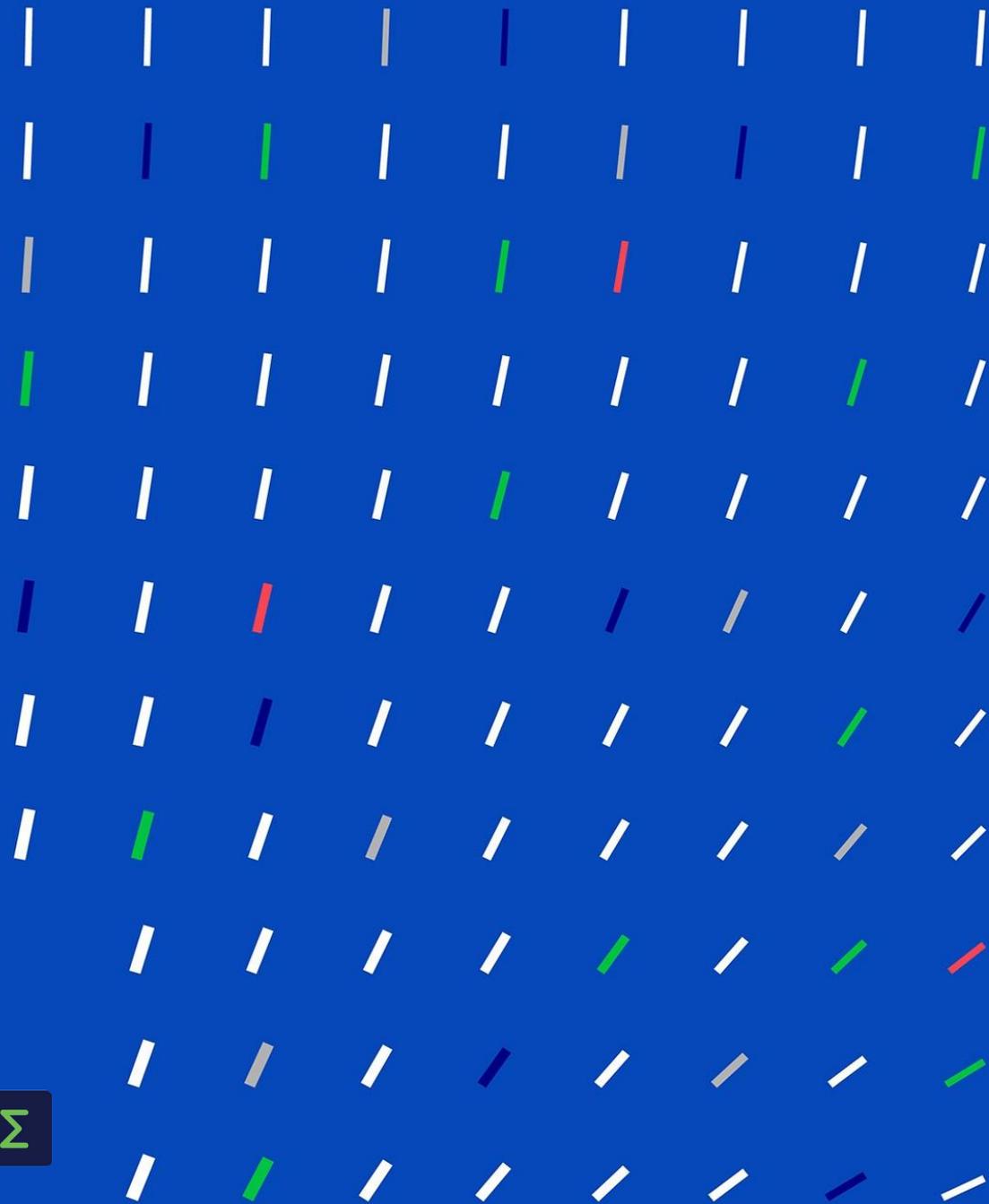
ITEA Award of Excellence winners with Spanish participation



Status March 2024



ITEA is the Eureka Cluster on software innovation





Exceptional
Excellence

 I2 PANEMA

I2PANEMA

Bringing the value of IoT to ports

By bringing Internet of Things (IoT) solutions and added-value services to the world of ports, the ITEA project I2PANEMA (Intelligent IoT-based Port Artefacts Communication, Administration & Maintenance) has made their operations more efficient and sustainable across various business cases.

Start date – End date

Oct 2018 – March 2022

Website

<https://itea4.org/project/i2panema.html>

<https://www.i2panema.eu/>



I2PANEMA

Examples of impact highlights

- I2PANEMA has demonstrated that ferry arrival times in Hamburg can be accurately predicted to within 15 seconds, which has resulted in a 100% reduction in average processing time for stop announcements.
- In the Assan port in Türkiye, sensor-based container localisation has enhanced operations by over 10% in a single shift, with completion time reduced by more than 15% and accidents decreased by more than 50%, boost
- Accurate prediction of PM10 emissions in Gijón Port has been demonstrated with 100% reduction in average processing time for environmental alerts and emergency protocol activation.

The background is a dark, high-tech digital environment. It features a grid of glowing blue and white circuit traces. Numerous square microchips are scattered across the surface, some with small yellow lights. In the center, a glowing white wireframe brain is positioned above a 3D bar chart with cyan bars of varying heights. A large, red, jagged-edged starburst shape is overlaid on the scene, containing the word 'Innovation' in white text.

Innovation

IVVES

IVVES

Methods for verification and validation of AI in strictly regulated domains

The use of AI is rapidly increasing, and we experience the strong benefits of AI, including reduction in human error, 24/7 availability, unbiased decisions and faster decision-making. On the other side, more and more questions are raised concerning the use of AI on how to make sure it is safe and correct. This is especially the case for strictly regulated domains as a mistake can have huge consequences. IVVES has developed new verification and validation methods, ensuring the trustworthiness and reliability of AI and ML in these environments.

Start date – End date

Oct 2019 – June 2023

Website

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



IVVES

Examples of impact highlights

- Thanks to IVVES, Philips can now use a new AI method in its SmartSpeed MR software, speeding up the MRI examination; FDA approval was provided end of 2022. Philips expects this method to be used in 97% of future clinical examinations.
- For MRI PRACTICE POTSDAM, SmartSpeed is an absolute gamechanger; before SmartSpeed, they examined about 160 to 170 patients a week and now they can manage up to 200 patients a week.
- For cyber security, WithSecure has developed a tool suite to automatically analyse test results and feedback provision to increase confidence in its product releases.
- For Alstom the IVVES results led to improved maintenance of legacy train fleets which do not have data collection infrastructure by design.

A woman wearing a blue hard hat and a yellow safety vest stands in a warehouse, looking upwards. The background is filled with a network of white lines and nodes, overlaid with various icons: a factory, a truck, a Wi-Fi symbol, a shopping cart, a cloud, a barcode, and a factory with smoke. A large red starburst shape is centered over the woman's face.

Exceptional
Excellence

OPTIMUM

OPTIMUM

Offering greater efficiency, safety and usability in future smart factories

In today's factories, machines such as cranes are typically operated manually using heterogeneous hardware. These are usually not interoperable and diverse control environments are in use; static machine configurations also make evolution hard to achieve. OPTIMUM enables machines of different kinds and from different manufacturers to communicate with each other and their operators, improving the worker's and equipment's safety.

Start date – End date
Nov 2017 – June 2021

Website

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



OPTIMUM

Examples of impact highlights

- OPTIMUM's innovative assistance functions will significantly reduce assembly times in semi-autonomous processes; an 18% reduction was already achieved during a Proof of Concept.
- DEMAG sold a crane to the Fraunhofer Institute for Factory Operation and Automation (IFF) in Magdeburg for its new research factory (Elbfabrik), which will be enabled with innovative assistance functions from OPTIMUM. Consortia partners will support the implementation of the OPTIMUM functionalities.
- NXP is developing an integrated hardware solution based on OPTIMUM results to serve an Evaluation Kit for the industrial market.
- TARAKOS has extended their software solutions (taraVRbuilder & taraVRcontrol) and has significantly improved the planning of material handling processes with cranes. The roll-out to the market took place in August 2022 and the extended software is also being sold to the Fraunhofer Institute for the Elbfabrik.
- BEIA has developed its IoT telemetry solution with OPC UA for cranes to be used by NAVROM, the biggest river shipping company in Romania.

A hand holding a glowing blue sphere with radiating lines, set against a background of a molecular structure and binary code.

**Business
impact**

CyberFactory#1

CyberFactory#1

Fostering the optimisation and resilience of the Factory of the Future

To enable the Factory of the Future, optimisation must be reconciled with security. The growing integration of Information Technology into Operational Technology exposes manufacturing systems to a growing number and diversity of threats. The ITEA project CyberFactory#1 has designed, developed, integrated and demonstrated a set of key enabling capabilities to foster the optimisation and resilience of the Factory of the Future.

Start date – End date

Dec 2018 – June 2022

Website

<https://itea4.org/project/cyberfactory-1.html>



CyberFactory#1

Examples of impact highlights

- Airbus in France is collaborating with Bittium in Finland to deploy CyberRange to simulate and monitor their distributed manufacturing environment. Airbus is also offering Security Operation Centre (SOC) services that monitor a factory's traffic, raise alarms and respond to anomalies. Across the project, commercialisation will target the digital twin, Industry 4.0 and IIoT security markets, with impressive results expected in each: by 2025, partners can expect revenues of EUR 8 million and 82 new jobs in the digital twin domain, EUR 28 million and 114 jobs in Industry 4.0 and EUR 114 million and 256 jobs in IIoT security. This total impact equals EUR 150 million and 452 jobs across the consortium.
- RoboShave has achieved 100% traceability of processes and products from the shop floor and 100% accuracy of (near) real-time information on dashboards, both of which started at zero. By automating machine and manufacturing execution system communication, it has also seen a 100% reduction in the time spent by human operators on manual machine data collection. In turn, this reduces human error while improving worker satisfaction by allowing them to focus on more stimulating tasks.
- The project has been recognised as a pioneer of Industry 5.0, which goes beyond efficiency and productivity and reinforces industry's contribution to societal goals. With its focus on a sustainable, human-centric and resilient industry, CyberFactory#1 has paved the way to the next industrial revolution.



Business
Impact

BENEFIT

BENEFIT

Advancing evidence-based medicine for better patient outcome

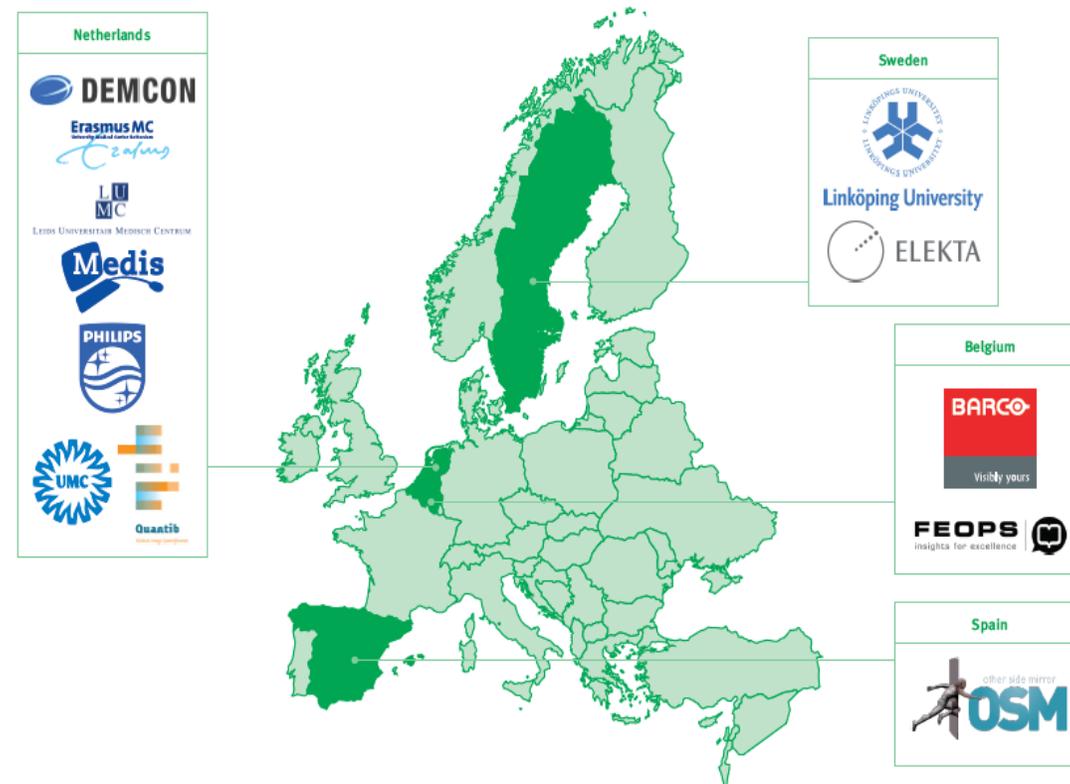
The BENEFIT project tackled three main challenges: the societal aspect of coping with the increasing number of minimally invasive image-guided interventions; the economic dimension of delivering care with quantified targets in terms of quantity, price and quality of care; demonstrating the technical 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>



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 HEARTguideTM. 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.