ITEA Award of Excellence winners with Canadian participation

Status February 2024

ITEA 4

ITEA 4 is the Eureka Cluster on software innovation


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, innovatior 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
IVVES

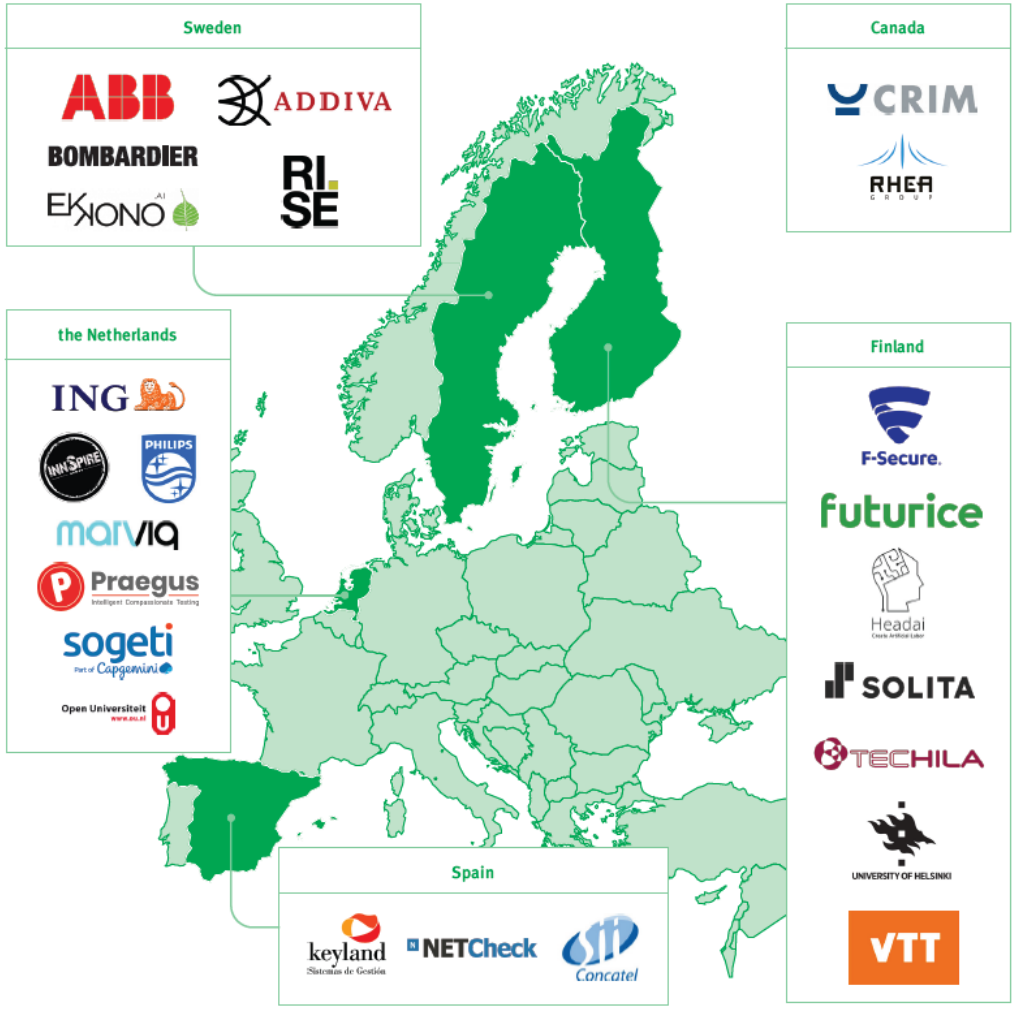
IVVES

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.


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.

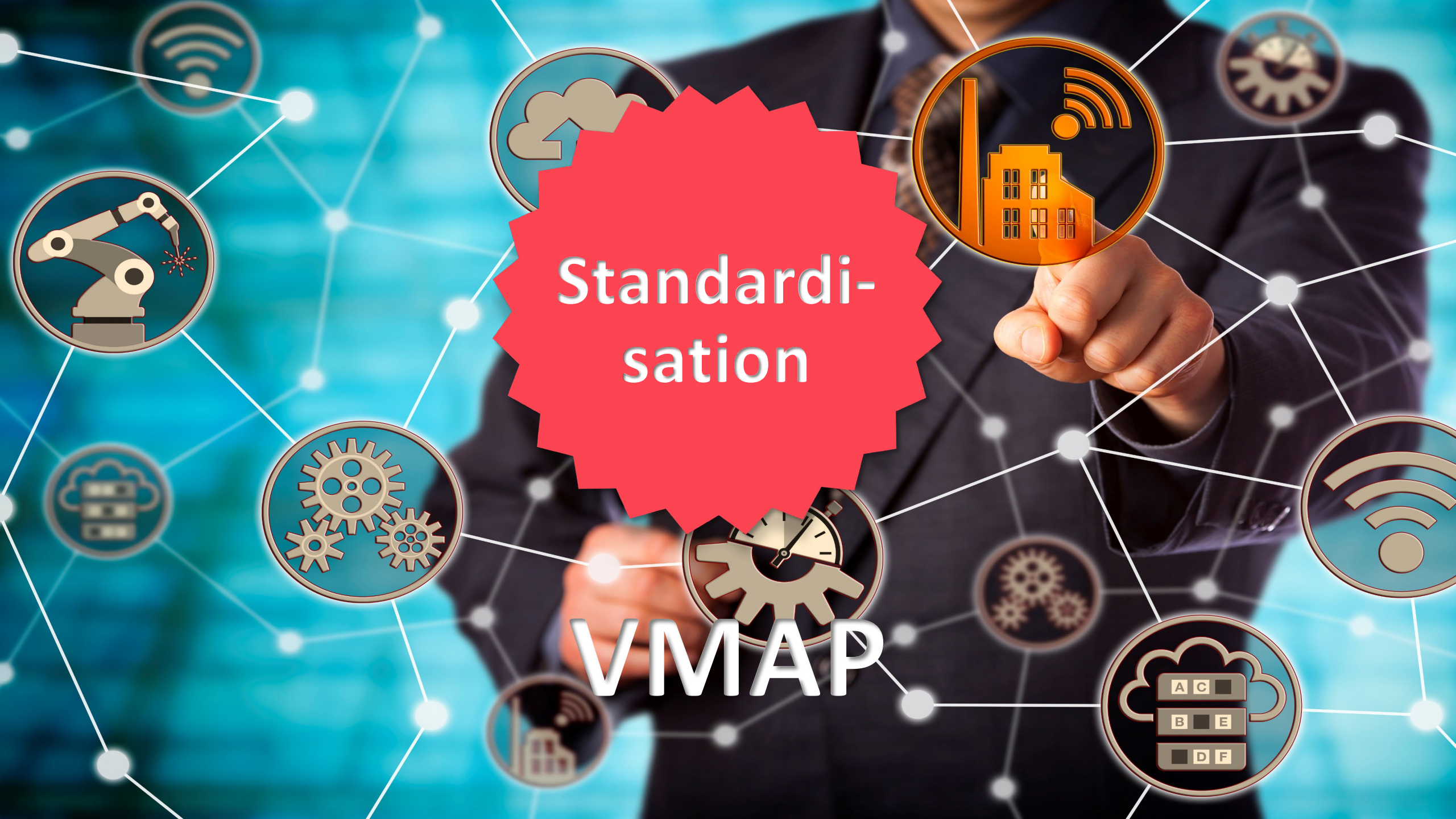
Start date – End date
Dec 2018 – June 2022

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.


Standardi-
sation
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 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 ouncil and the ISO STEP 242 community.


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 PARNTER 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.


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/emphysis.html
https://emphysis.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.


Exploitation
& unique
partnerships
PS-CRIMSON

PS-CRIMSON

Ensuring safety in tomorrow's smart cities

Cities nowadays are digitalising more and more services like data gathering for mobility, safety and communication to citizens. However, authorities still need to tackle information fragmentation caused by a lack of common platforms, toolsets and separated data per department. The ITEA project PS-CRIMSON delivers a platform that serves as a single-entry point for city representatives and a One-look overview of the city. A focus lays on the public safety and disaster management domains.

Start date – End date
Sept 2016 – March 2020

Website
https://itea4.org/project/ps-crimson.html

PS-CRIMSON
Examples of impact highlights

- PS-CRIMSON's first commercial project, a tender for Smart City Hilversum won, is now being deployed based on the data-driven platform MyCity from Atos. Atos will cooperate on this project with the project partners ViNotion, Esri Canada and Sorama.
- Similar projects are being tendered by other cities in the Netherlands, Germany, Belgium and Canada, where the partners are offering all or part of the PS-CRIMSON.
- Thanks to the PS-CRIMSON results, a city responsible for video-surveillance can now work with one single screen and virtually walk through a 3D model of the city and see everything that is happening in a single view.
- Thanks to the 3D smart model of Esri Canada, developed within PS-CRIMSON, city representatives can now see the effects of an earthquake down to the level of interior units in the damaged buildings and the different levels of flooding that would follow.
- PS-CRIMSON's offerings enable the platform's users to detect suspicious situations, localise them, follow the subjects involved and intervene before escalation takes place.
- Thanks to the project's world-class technology results that can be extended to many other domains, this can now all be done with a high performance and accuracy which is two to three years ahead of the market, making cities a better and safer place to live in!