PS-CRIMSON

Success story

A one-look overview of the city in 5 seconds

Nowadays, cities are digitalising more and more services, like data gathering for mobility, safety and communication with citizens. This data is required to be able to govern an increasingly complex and dynamic city. However, authorities still need to tackle information fragmentation caused by separated data per department and a lack of common platforms and toolsets. The ITEA project PS-CRIMSON, a collaboration between six academic and industrial partners from the Netherlands and Canada, developed a unique 3D smart digital model that combines all of the gathered data on one common platform. With this platform, public safety and disaster management can be improved, as pilot projects in Eindhoven and Vancouver have shown.

One-look overview of the city

The PS-CRIMSON consortium has delivered a platform that serves as a single entry point for city representatives. This facilitates data collection, sharing, management, analysis and dissemination from public and private urban infrastructures and resources. This single entry point to a smart city platform provides access to the information of different types of systems from different departments. It saves city representatives a lot of time and money and gives them one view of all of the data they are gathering, enabling them to combine these and act upon them quickly. A focus lies on the public safety and disaster management domains, where the platform's benefits are extremely important.

The cities of Eindhoven and Vancouver were involved from the start, providing input on the design and implementation.

This resulted in two technology demonstrators in two use cases, also focusing on public safety and disaster management. The following scenarios illustrate the possibilities.

Improving public safety

For public safety, a city representative responsible for video surveillance might currently need to monitor up to 60 live screens in the control room. In addition, (s)he may receive dozens of calls during the day from local citizens and officers regarding suspicious events. Thanks to the PS-CRIMSON results, this person could now work with one single screen and, once logged in, take a virtual walk through a 3D model of the city and see everything which is happening in a single view.

In the background, software is monitoring all of the city data and filtering out relevant events

that require attention. This pre-processed information allows the city representative to make split-second decisions, see connections between the different data and, most importantly, feel in control. For example, when someone sends a mobile picture to the police, the search engine can determine where the incident is taking place to an accuracy of 10 meters thanks to AI image technology developed by project partner Eindhoven University of Technology. This technology was also applied to human re-identification, which allows the system to detect individuals in a certain area and connect the walking routes of these individuals using cameras distributed throughout the city. Walking routes can be made visible either forwards or backwards in time.

Disaster management

The west coast of Canada is vulnerable to the huge earthquake fault running down the coast. Always upgrading their plans to protect Vancouver, a city of 2.5 million, city officials worked with project partner Esri Canada on using the strata plans to create a 3D smart model. The PS-CRIMSON application and model showed the effect of an earthquake of 6.9 on the Richter scale on the densely populated downtown. The application and model simulated the different scenarios and enabled the city to predict and pre-assess the damage with a much greater level of detail and accuracy. No longer looking at a census block level of 5-10 buildings, they can now see the effects down to the level of interior units in the

Project start
September 2016

Project end
March 2020

Project leader
Egbert G.T. Jaspers,
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More information
https://itea4.org/project/ps-
crimson.html

damaged buildings and the different levels of flooding that would follow.

One team, one goal
The PS-CRIMSON partners showed a unique complementarity in their collaboration: Atos and Esri Canada offer the integrated platform, ViNotion and Sorama are experts on sensors, Esri Canada created the digital twin for indoor city modelling, Cyclomedia is responsible for the photorealistic 3D texturing and the Eindhoven University of Technology supports this with innovative solutions on AI. Together, they cover the full value chain for a smart city solution, integrating the different silos of data and technology together in one common platform. In addition, a subsequent ITEA project called SMART has been set up with a number of the consortium partners.

First commercial global successes
By offering a complete smart city solution which is valued by cities, the project has already had its first commercial successes: they won a tender for Smart City Hilversum, which is now being deployed to create insights on traffic. Hilversum also intends to use this to monitor the social distancing of crowds to control the COVID-19

pandemic. They are now the first adopters of the PS-CRIMSON platform to share valuable public data between different departments.

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 results. Atos is in the lead for a smart city project in Germany and ViNotion has sold PS-CRIMSON results to other cities, including Amsterdam, 's-Hertogenbosch and Bruges.

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!

"The PS-CRIMSON project showcased enhanced value streams and created new products that don't exist in the emergency management realm. These value streams provide enhanced visualisation above and below ground, demonstrating impacts to our built environment. This allows emergency managers to derive detailed information at the building level, supporting response efforts."

– Kristopher Hayne,
Emergency Management Analyst,
Vancouver Emergency Management
Agency