



## Developers from Ghent, Aarhus and Amsterdam gathered for the first SCORE DevWeek in Amsterdam in July 2019

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**In this article we share results, findings and impressions from the SCORE "DevWeek" in July 2019.**

**The SCORE consortium had a partner meeting in April 2019. During that meeting, the representatives of Aarhus, Amsterdam, Digipolis Ghent and City of Ghent decided to organize a Development Week (DevWeek). This week was held in Amsterdam on 8-12<sup>th</sup> of July and hosted by City of Amsterdam.**

### **Co-development? Hands-on, head first!**

The goal: bring together our developers in the same room, and focus for a week on development. We took up the task of consolidating effective co-development workflows, aligning processes on the practical, code and infrastructure level. To make open source work better for smart cities, the aim was to work extensively together on the SCORE applications, prototypes and components we're building for our cities.

It became clear that to reach the DevWeek's goal, we needed to "learn by doing". We went for a hands-on approach. Inspired by the place where we gathered, Data Lab Amsterdam, we approached this week as a Developer Sprint. That meant defining barriers, inspecting, discussing, tackling them and dividing tasks in continuous daily, iterative cycles.

The Development Week initiative turned out to be successful: we are happy to report that it resulted in building plenty of momentum in SCORE and in each participating city. We succeeded in our mission to turn a group of individual developers into a multi-city open source SCORE development team. Now the DevWeek is over, each member is continuing the work remotely and making progress on both the generic as the city specific front.





## What we worked on

During the week, coders from Aarhus, Digipolis Ghent and Amsterdam co-developed on the **IoT registry** application, one of the SCORE applications lead by Amsterdam. The City of Amsterdam provides an online registry that offers citizens transparency on where IoT (*Internet of Things*) devices are located in the public space. Both Ghent and Aarhus are interested in setting up a similar concept in their city.

We started to re-architect and re-engineer this application. In the spirit of the SCORE project, the aim is that the IoT Registry concept might in time be reused and applied in virtually any city, based on the city's needs and available data on transparency and IoT devices.

Easier said than done! On the first day of the DevWeek we found out that the reusability of the initial Amsterdam open source codebase has its limitations. Cities do not build applications with quick replication by Aarhus or Ghent in mind. While clearly a serious threshold, fortunately this did not stop the enthusiasm of the team. Taking a step back, we decided to inspect the actual technical barriers closely one by one. Dedication, professionalism and hard teamwork lead us to deliver a codebase suitable for more generic use.



During the week, a backlog was maintained with stories and tasks small enough to be realised in short notice. Items and features too specific to one city's context or wishes were postponed, to be coded remotely later. We realised that during a SCORE developer week, being able to physically explore and discuss the more advanced knots and issues, we should focus on the common interest.

Our main results for the IOT Registry application at the end of the DevWeek included:

- the possibility for cities to plug in own map layer components, as opposed to the default one that was limited to City of Amsterdam,
- generic support for multiple European languages and translations of all language specific labels and components,
- a more dynamic and flexible underlying data structure for the sensors to be mapped, which



makes it easier for cities to compose their own list of sensors, based on what is available in each city),

- a customizable header in the visual interface,
- customizable pop-ups for single markers on the map,
- ...

Developer? SCORE's applications for open smart cities are being developed in open source (needless to say we believe open source to be a core enabler for transnational collaboration and replication). Smart city coders will be pleased to explore, retrieve and test the [IOT Registry](#) and [more SCORE coding results](#) on Github.

## What we also worked on

While the IOT Registry application was the main focus of this DevWeek, the participants from Ghent and Amsterdam also worked on prototyping, design, coordination and communication tasks for other SCORE applications in development, such as:

- [Crowd Flow Dashboard application](#) to facilitate data analysis on people density and flow among city departments.
- [Reusable QR toolkit for smart cities](#) to link location based workflows and sensor POC (proof-of-concepts) to QR codes.

The SCORE project is not only about the development in itself, but also about sharing insights and experiences. Our mindset is to *share*, within the partnership and in the wider smart city community. The participants of the DevWeek also took the time to report on social media about the initiative, as it proceeded. Our impressions, small stories and pictures can be found [here](#) (Twitter) and [here](#) (LinkedIn).

## Our findings and next steps

- For the IOT Registry, the participants will now **continue the development in our own cities** and teams. We will start customizing the generic IOT Registry code we created in Amsterdam and finetune it to city specific



needs. The open source workflow we've set up now should nevertheless allow us to remain aligned. If such updates require code changes in the common SCORE application, we will agree to adopt them in the common code repository. We hope our joint efforts will progressively lead to the IOT Registry becoming a reliable and reusable tool, not only for our own cities, but well replicable and customisable by other cities that want to use it in the future.

- While we made practical agreements to continue the development remotely, we can't ignore that our productivity peaked during this initiative. It makes sense that as a next step we **repeat our DevWeek concept** in one of SCORE's partner cities. Let's invite all SCORE partners and solution working groups again to team up in the same hands-on, open spirit.
- Having gained a lot of hands-on experience on what works and what doesn't in transnational co-development, we will continue to **document our learnings and findings** and present the result as part of the project's meetings. We hope our experiences can lead to other cities following in our footsteps.