




## SHARING & REUSE CONFERENCE

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# BORIS VAN HOYTEMA

*Open Source Development Manager, Interreg SCORE project,  
City of Amsterdam*

**SCORE collaborating cities: open communities  
are the key to reuse and interoperability**

Follow discussions online  @EU\_isa2  
#SRCONF19



## How I got to work on SCORE

- Age 8, didn't fit in, hard time learning
- Age 9, got onto the internet, found out how to learn myself with the help of others
- ...
- Open source for cities, a dream of collaboration infrastructure
- City of Amsterdam open source advisor
- SCORE





# SCORE

15 partners, 9 cities, agile co-development of open source solutions





## Ambitions when we started

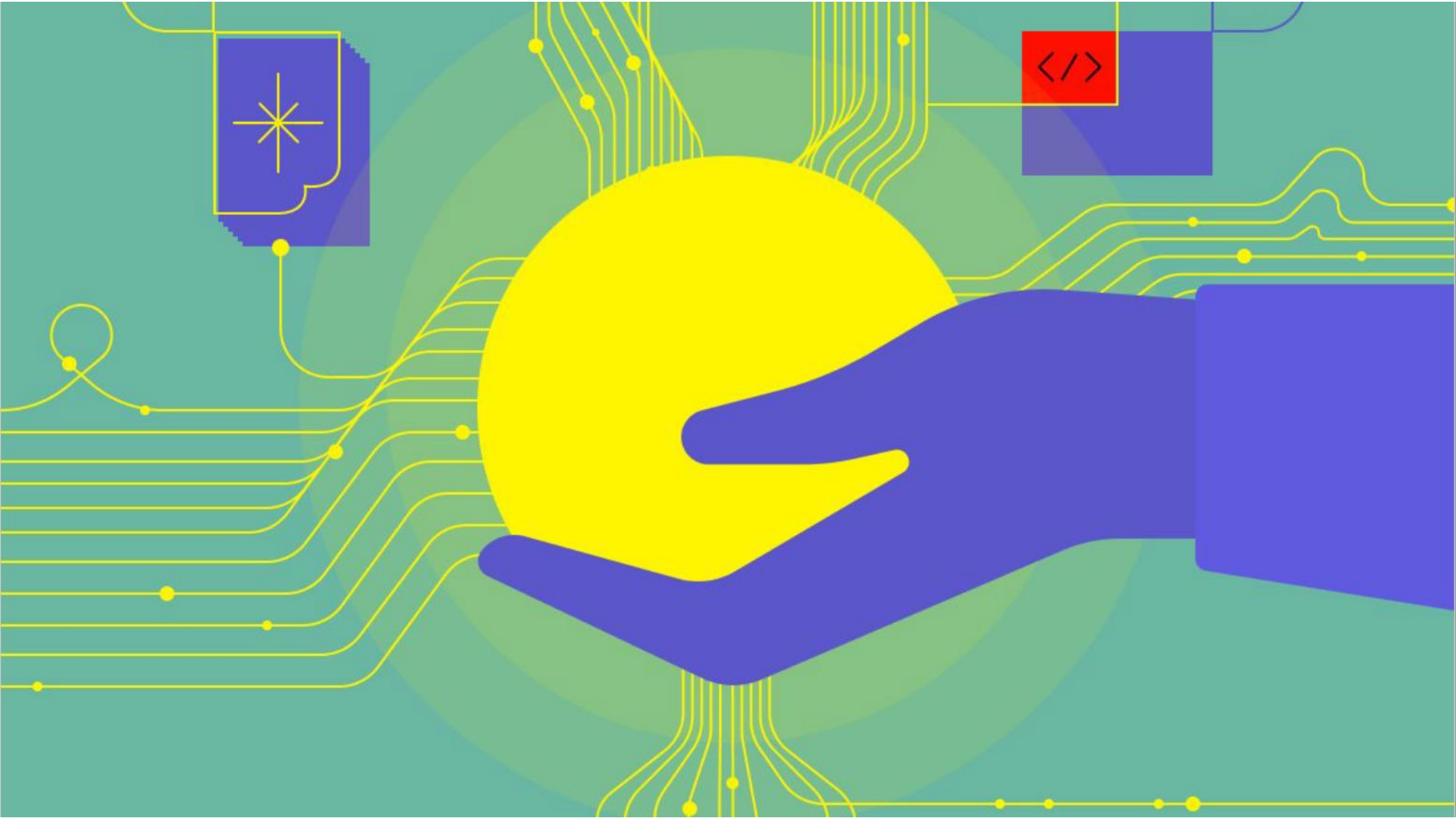
- Identify common challenges faced by citizens
- Develop open source solutions together to solve these challenges
- Replicate our solutions to cities all over Europe



## We thought technology would be the hard part

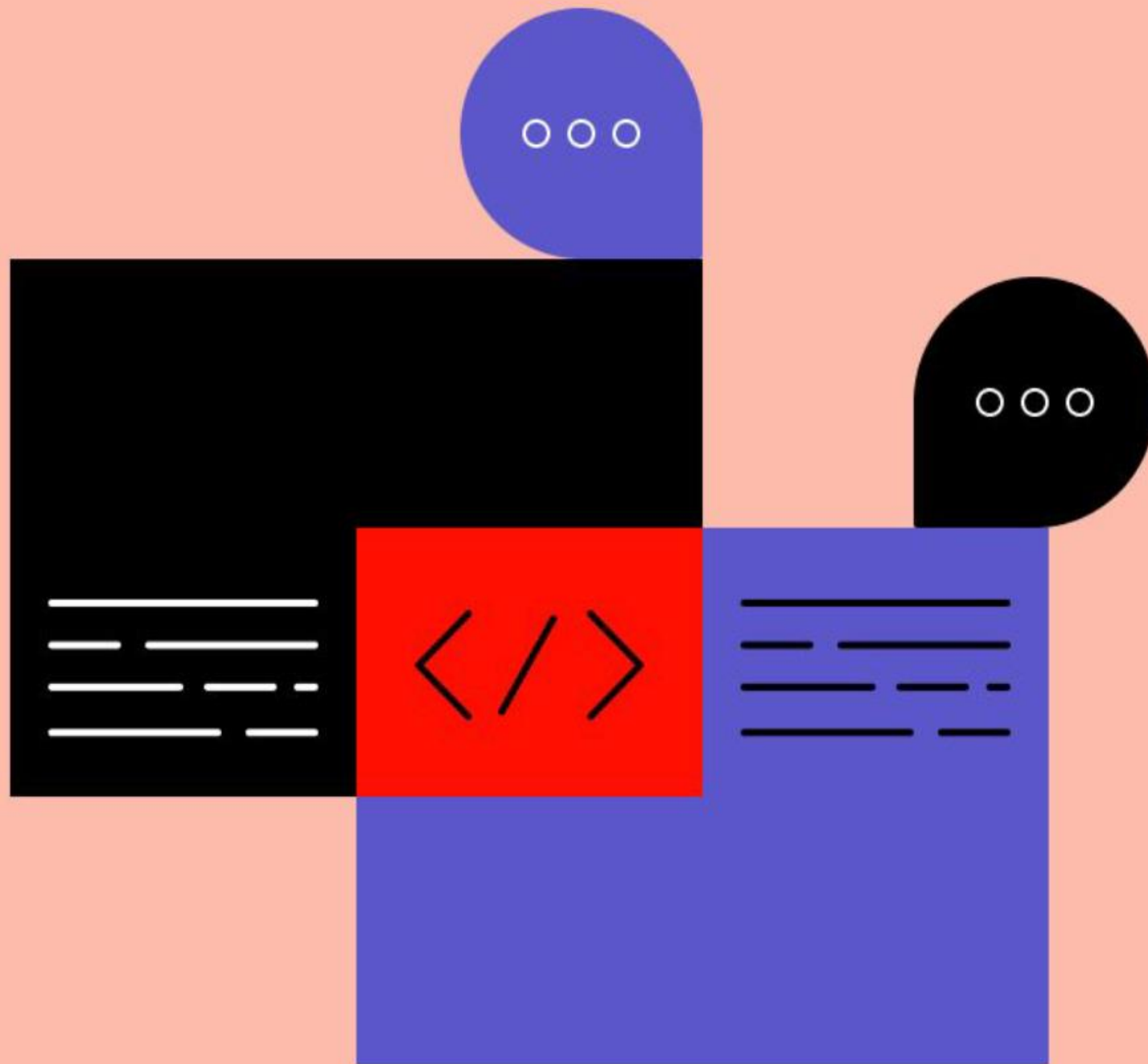
- Data portability
- Setting up and organizing collaborative development teams in the cities
- Deciding on a technical infrastructure
- Sharing one common process
- Collaborative backlog and sprint management
- Technical interoperability
- Docker or Open Stack infrastructure
- GitHub or a GitLab instance







**Cultural  
interoperability  
is as important as  
technical  
interoperability**







# Mapping our problems

Gent and Digipolis Gent.

Assumption: finding a common problem is easy, making the solution is hard.

We found out building solutions is not that hard. Challenges are incredibly hard to identify well. Very hard to openly communicate and be vulnerable.

Cultural change: from working reactively to working pro-actively by using open collaboration throughout the organisation.





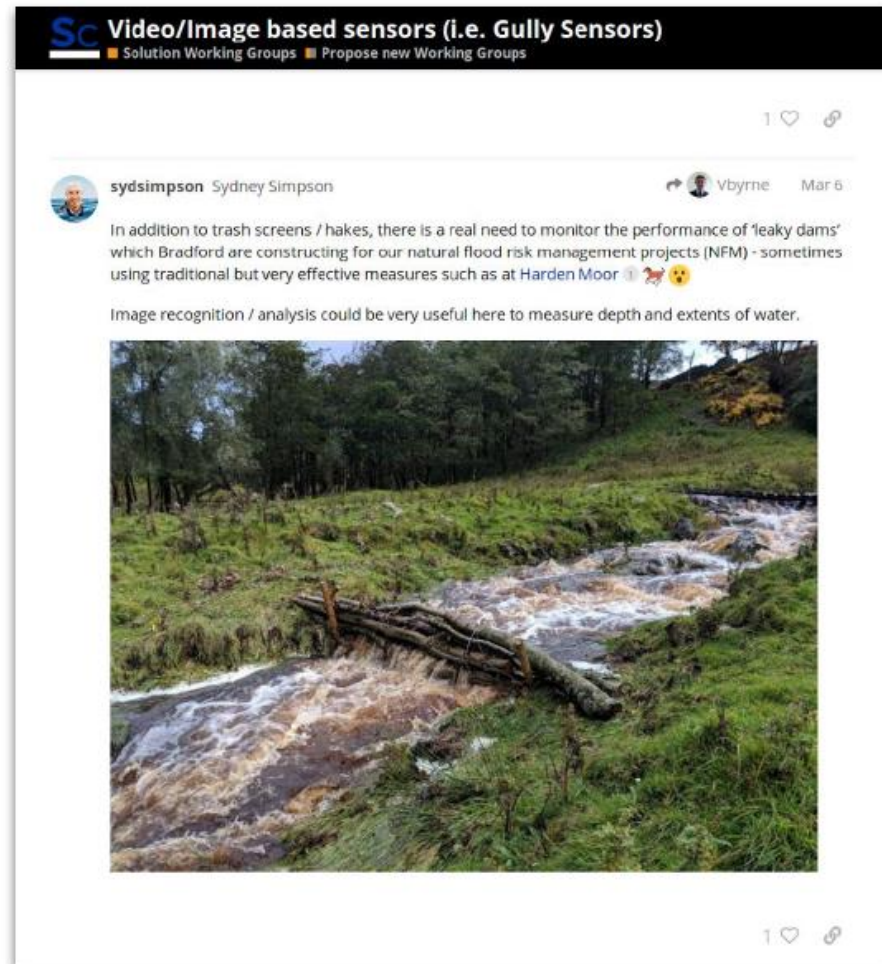
# Drainage and flood risk management

Aberdeen, Bradford, Bradford University and Amsterdam Data Science.

Data inventory, technical infrastructure, architectural mapping and big data analysis.

Value is in understanding the problems, what problems are shared, how solutions are discovered and procured.

Being vulnerable by sharing our problems and learnings in the open.



# GeoNetBake

Hamburg, Ghent & Digipolis Ghent, Aarhus, Gothenburg, Johanneberg Science Park.


Shared challenge, Hamburg has a proposed solution in active co-development from other partners.

Open development enables a wide variety of stakeholders to be involved in development.

## SCORE .community

### Intelligent road works vertical panels - GeoNetBake (Hamburg)

Solution Working Groups GeoNetBake

timvanachté @HD\_Hamburg

Hi @SBK, Hamburg @HD\_Hamburg

Ghent is interested in following closely the 'GeoNetBake' project in Hamburg. The difference between 'planning' and 'reality on the field' and how IoT can play a role in bridging that gap is a focus / use case that is getting more and more attention here (in mobility and road works, but also other smart city themes).

We could possibly even evolve to co-developing components in a SCORE solution working group, especially if your current experiments seem to work and the (expected) accuracy is < 0,5m.

GeoNetBake information was somewhat scattered in the SCORE community and google drive for the moment, so with this post I am creating a proper dedicated thread for this.

Current information is here and here.

Thank you and looking forward.

Cc: @HansF @joranV0

created

last reply

9

80

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10

6

Jan 25

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HD\_Hamburg Hennig David

Thanks @timvanachté for opening the topic. In the future we will concentrate all information about GeoNetBake here.

1

Jan 31

## About the GeoNetBake category

Q: What about the more Project Description?

1. How was the project GeoNetBake initiated? Did you at first test other approaches to collect information on the field, or did you immediately start experimenting with different types of sensors?

The project GeoNetBake-Extended was initiated in order to better coordinate a high traffic road in Hamburg. The objective is that a specific sensor technology is tested on-site and the information is a platform. This information includes the position, speed, lateral position, steering and location of the lane on as well as activation time and activation end (planning). All these information are automated, time specific and time transparent in form of a package. Data to the collected data as well as previous planning data better coordination coordination can be realized.

The authority of economy, traffic, and innovations (BfL) is a contracting authority. Furthermore, GeoNetBake-Extended is another project of the IT world congress taking place in Hamburg 2021. Moreover, it belongs to the funding program "Saubere Luft" (clean air) of the Federal Government.

In the context of pre-project - called GeoNetBake - diverse sensors were selected in order to test if they are able to meet our requirements. In cooperation with the agency for geoinformation and surveying (LGL) we have set criteria concerning the mandatory information and the accuracy of the data. The sensors are selected in order to be used on the road in Hamburg. First test results were positive.

2. What are the challenges? Do you maintain a technical roadmap?

Current regulations with defined sensor standards. Our projects by end of April / beginning of May 2021 is also for manufacturers. We will develop a detailed project plan that is not allowed to create a sensor technology, complex sensor development of hardware and software at the same time. Though there is a lot of hardware and software, they do not work and therefore also in the development. In addition, the manufacturers must not change the location, as they participate in Germany, which is a quite complicated procedure for us and must have much impact on the digital city. Furthermore, we are currently waiting for what we can do in the end of the project. The technical or hardware side is a problem in our field and is transferred to us. From there, the data can also be integrated into road maps.

3. Sensor maps are a communication framework. What does it mean?

It is in the context of the LGL as well as on the road of the cooperation was to check which sensors, technical data reliability. From that we can develop the following sensor data reliability: UTM East, UTM North, number of satellites, deviation to target, etc. conducted in the street. Further tests on real construction the contracts with the manufacturers have been concluded.

4. Sensor maps are a communication framework. What does it mean?

For the sensors, we will be working out in the future side of the road and the data will be integrated into the system. Our objective is to test it.

5. Is the construction sector ready to take on the market of the sensors?

For with the sensor manufacturers and the construction for cost of the project.

6. Making your concept to a road work aspect, what are the hours, however, it is convenient to use the sensors for other projects? What could be made possible?

7. Construction sites will be made available for further use as the latest (e.g. as well as the free and the availability of Hamburg. It can be matched with the transport arrangement plans, as a quickly determined whether a construction site has been set up. Then, however, the data also has to be used by the road to better control traffic safety. For example, if the sensor (the construction company) will receive a message immediately. If it is currently, it would be a good idea to have the sensor along. Another use case is for example a navigation system. It could receive very specific information about construction sites and also be used by other projects, e.g. for navigation. Therefore, it is made possible to have a sensor and real time data on the road. Thus, the data of the construction sites on the road.

8. Which sensors can you share with us if we go for a project like this?

We can share the lessons learned around the project GeoNetBake-Extended (e.g. the performance description, the accuracy of the data as well as the experience of the sensors). From further use of the data, the significant improvement of traffic security, more fluid traffic, and to very concrete measures like better and more targeted planning of construction sites based on considerations of real-time construction sites information. During the course of the project, the sensors will be specifically used as a test field for autonomous driving. We can also share our experience with you. Furthermore, we can think together and further expand the idea of how and where these sensors could be used.

9. How many sensors will be equipped with a geotagging system? If so, all sensors will be equipped, according to which criteria do you select the sensors that will be equipped?

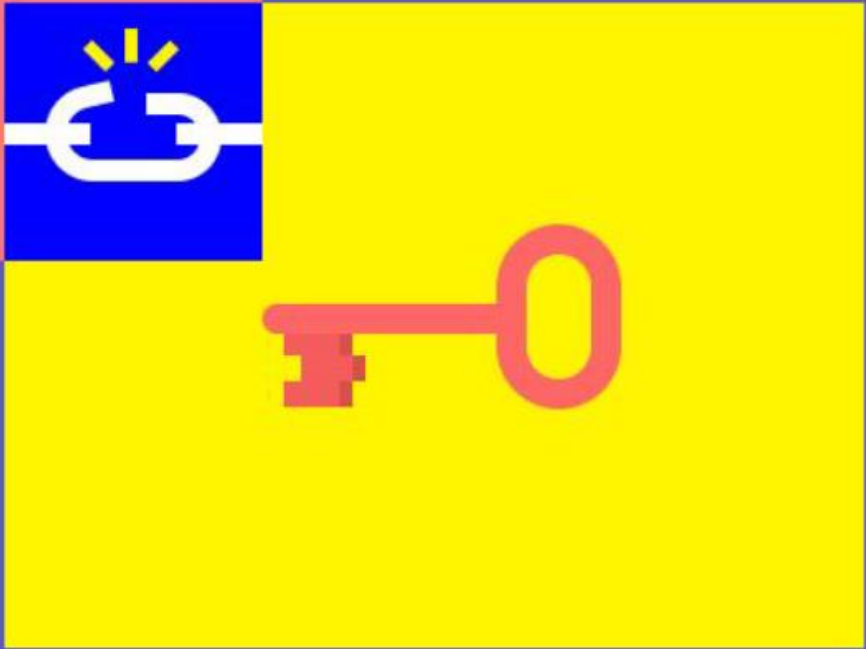
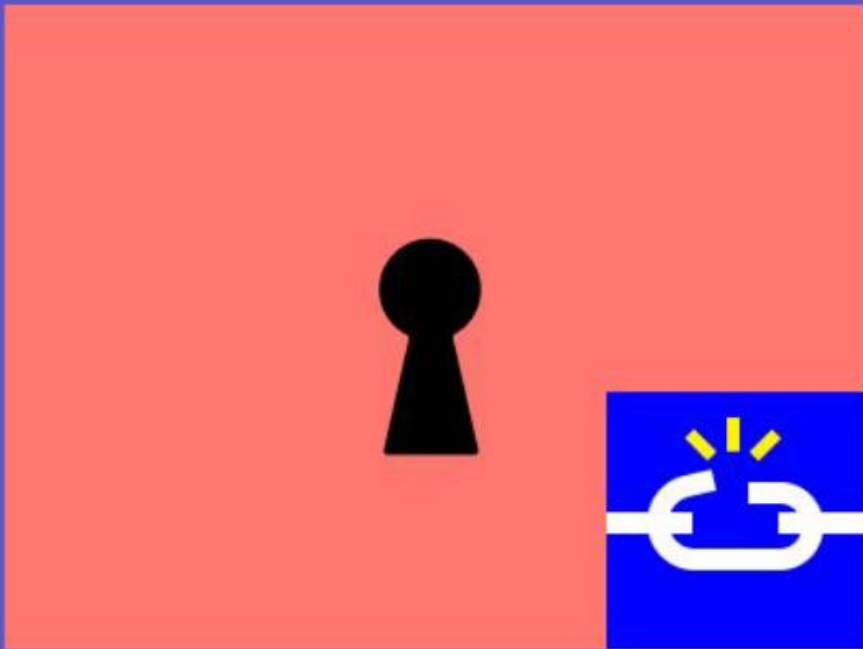
The number of sensors that will be equipped is depending on the product of the sensor. Although the project GeoNetBake-Extended is not a test field, how many sensors are necessary to achieve the project goal.

10. How do the sensors recognize each other and how do they communicate?

The communication between the sensors also depends on the sensor provider. In some systems the sensors communicate with each other while in other systems the communication is managed on a central server.

11. How do the sensors recognize?

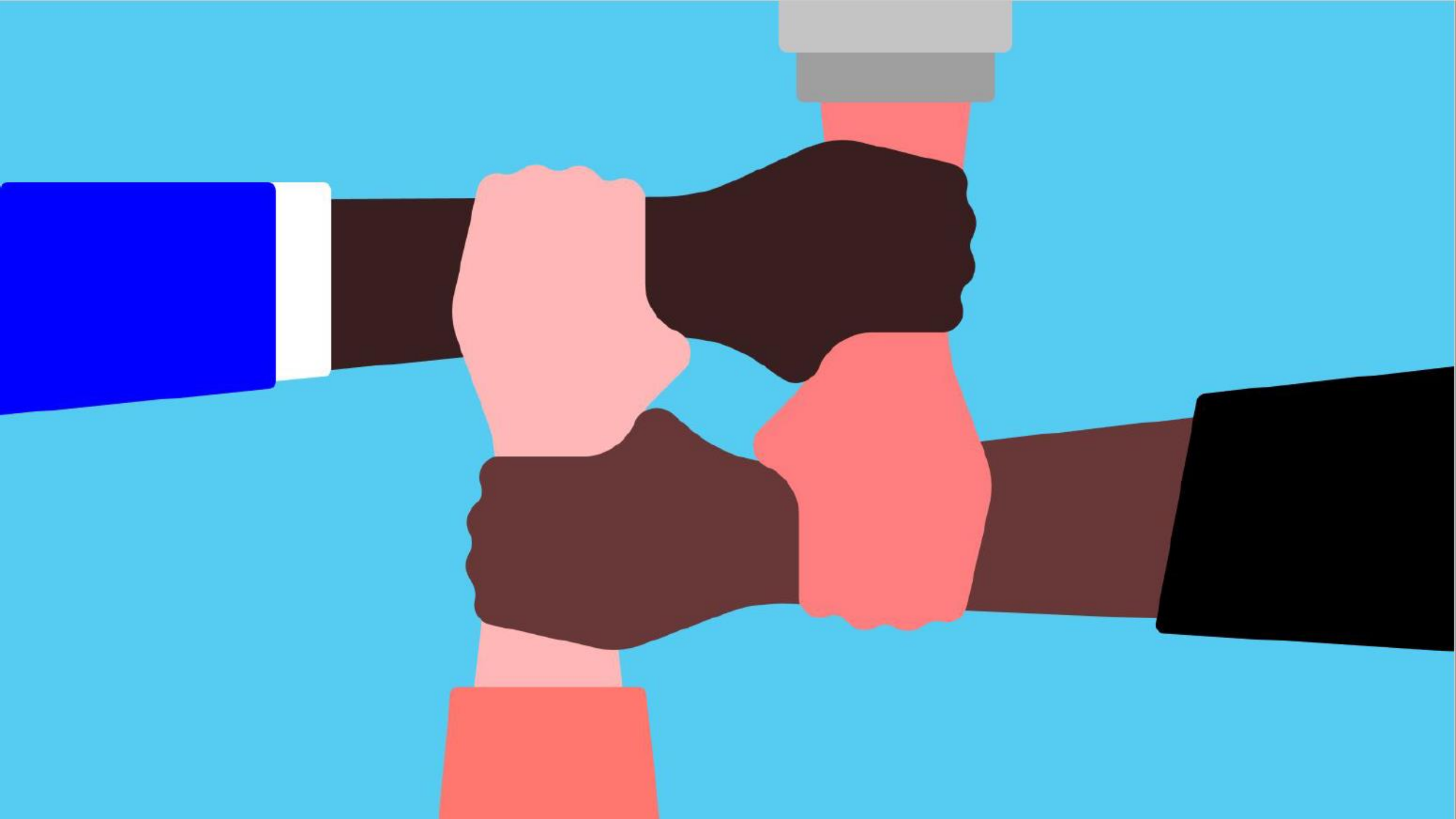






## In order to share & reuse

- When building collaborations, be open, because it is the only way to create common alignment and find problems everyone wants to solve.
- When discussing a common problem, be open, share discoveries and learnings because this enables you to leverage your problems with someone else's strengths.
- When working on solutions, be open, because you need diverse stakeholders involved.







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interoperability  
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technical  
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**Boris van Hoytema**  
Director

**The Foundation  
For Public Code**

boris@publiccode.net  
+31 6 17 96 02 05  
@bvhme

publiccode.net

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