Open urban big data platform in Cologne

Smart solution 8
Big open data platform

Impacts

INTEGRATION
of any urban data by using open standards, protocols and architecture.

REAL-TIME
processing of data by smart services and scalable cloud-based platform

FAST
and easy overview of the current city state

Cologne

Technical partners

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What is it?

The open urban big data platform is able to store and process urban data in real-time in order to enable vertical and horizontal integration of data and services and to enable the optimal use of the data on this basis. Data can be integrated from different departments of a city administration as well as from different utilities or third parties with relevant data.A Cockpit visualizes the data and gives a fast and easy overview of the current situation of the city. Different focal areas such as the environment or the traffic situation can be considered.

What did GrowSmarter do?

The partner [ui!] developed the open urban big data platform '[ui!] Urban Pulse' which is used to integrate information from the City of Cologne, utility partners , private partners etc. UrbanPulse is compliant to a standard, which was developed during GrowSmarter in order to reduce the risk of vendor lock-ins. The standard is part of the European-wide standardisation efforts.
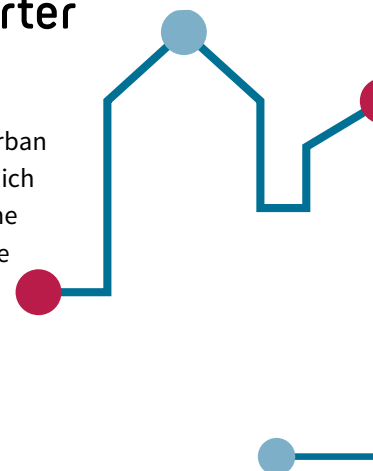
Some of the data integrated in Urban Pulse are also on the cities open data platform "offenedaten.koeln (est. 2008) and open for all. Some data are limited to the project partners for different reasons (competitiveness, data protection). For this reason, on top of the urban pulse two Cockpits were developed: The Urban Cockpit intern and extern. After integrating, consolidating, aggregating and using existing and new sensor data from infrastructures, the cockpits can display many different kinds of information and generate a new base for innovation to support management, control and future policies. The aim is to monitor the status and the impact of various measures in real time as well as simulate short and long term scenarios to improve the quality of decisions

The architecture of the Urban Pulse consists of three main layers: Urban Sensors and Data (bottom), Data Storage and Processing (middle) and Apps (top). Data is produced in the bottom layer, is processed in real time by smart services and stored in the middle layer and used (and visualized) on the top layer.

Data protection, competitiveness and other issues can lead to some data being kept (temporarily) internally

Lessons learnt

The potential of urban data platforms is large and most parties recognize so. The main obstacles are concerns about data provision (ethics, security, value etc.) and legal limitations. It is very important to define early how the data will be handled in order to provide clear information for any private or public partner looking to share data.

Upscaling & replication potential

Small use cases can help remove fear from data owners before moving on to larger solutions. The UrbanPulse platform is running on the Microsoft Azure Cloud in Cologne, but could run on any Cloud environment, and is easy to scale to big data streams of any urban domain.

Read a full description on how the Urban platform can be deployed in different ways on GrowSmarter's website:

Cross-city integration

Environmental monitoring

Traffic

How did the measure work?

Technical feasibility

The implementation of an urban data platform is technically possible in all cities. Depending on requirements, the city has to check whether it will set up the urban data platform by itself or have an external provider assist.

Economic feasibility

The benefit of an urban data platform depends on the available data and the willingness of the stakeholders to implement it. This must be assessed individually for each city.

Replication potential

Before replicating it is recommended to create a city-wide handling strategy looking at issues of data protection, innovation drivers, infrastructure, legality, public relations and everything else that is deemed relevant.