

# Towards Digital Twin of Living Environment-Use Case from the Zwolle City and the Dutch Kadaster

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## SUMMARY

In the real world, we have to deal with numerous social and environmental challenges, such as energy transition, climate change or subsidence. These tasks are complex and require integrated solutions engaging various stakeholders, technology and data. A concept of digital twin offers such a solution by integrating diverse data and sophisticated technology to create a digital representation of the reality used for visualization, analyses and modelling of different reality scenarios. In 2019 the Dutch Kadaster and the City of Zwolle started a pilot to build a prototype of digital twin of living environment. The focus of the pilot is to create a digital twin of a city district of Zwolle - Stadshagen to combine data relevant for visualising and communicating the impacts of climate change. The pilot focusses on assessing the needed resources to create a digital twin such as diverse type of data, experimenting with the involvement of the local communities and exploring the role of the Kadaster in creating and facilitating the digital twin.

From the pilot so far we have learned that to a certain extent it is possible to create a platform visualizing different types of data in 3D, needed for the purpose of the pilot. Most of the needed data are open and can be acquired from the National Geo information Infrastructure. For some datasets it was more challenging to acquire them due to large fragmentation and not uniform data formats. The data from sensors are also hard to find and use due to the lack of central register of sensor data sources. We also learn that the citizens engagement in the early stadium of the pilot helps to define the user requirements from the digital twin. The engagement of the local community in defining the pilot goals and even collecting data via crowdsourcing platform was high, partly due to the high societal relevance (local climate change impact) to the local community needs. Also the role of Kadaster as a central facilitator of the digital twin platform and the custodian of most of the data assuring their quality can be confirmed by the pilot.

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