Case study
Noord Brabant,
The Netherlands

# Brabant Water

## End-to-end advanced water supply digitalization using Xylem Vue

Brabant Water is the public utility responsible for supplying drinking water in the province of Noord Brabant in the Netherlands. **It is the country's second-largest water utility, supplying more than 2.6 million people through 1.3 million connections.** Its infrastructure, which is one of the most extensive and complex in the country, comprises a distribution network of over 18,500 kilometers, 29 production plants, and 21 operational areas, with an annual production capacity of nearly 200 million cubic meters of drinking water.

Against this backdrop, **Brabant Water is undertaking a digital transformation strategy aimed at transitioning to integrated, predictive, and data-driven management,** relying on digital twin, IoT, and advanced analytics technologies within its SOFIA (Smart Operations For Intelligent Assets) program. The project is driving the rollout of smart meters for commercial clients and also includes a pilot with committed private customers to investigate the value of smart meters supplied by two different vendors whose devices use NB-IoT. It also includes the deployment of around 900 pressure and flow sensors to enhance hydraulic modeling and improve understanding of network behavior. This new data, combined with information from corporate and operational systems, will serve as the basis for the **development of a digital twin of the supply system** and for the continuous optimization of operations.

### Challenges

Before the project began, Brabant Water faced the challenge of managing an extensive, technically complex network, characterized by the **coexistence of multiple data sources, field technologies, and corporate systems.** This situation prevented a holistic view of network performance and restricted the effective use of available data for advanced operational decision-making.

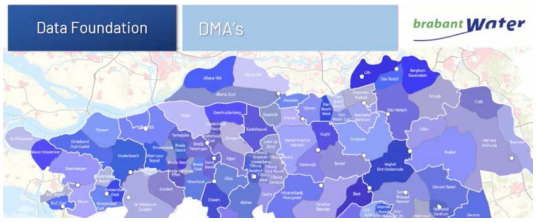
One of the key challenges was to leverage the **initial deployment of smart meters and sensors** to extend insights into consumption and hydraulic behavior, while advancing measurement and control area management to **manage limited water supply in the face of growing demand.** There was also a need to gain hands-on experience in implementing and operating an advanced digital platform capable of integrating data from GIS, corporate systems, IoT devices, and hydraulic models. This would **lay the technical and organizational groundwork for developing a corporate digital twin** within the SOFIA program framework.

### Solution

To address these challenges, **Brabant Water chose Xylem Vue as the central platform to digitalize the supply system**. This solution enables secure integration and management of data from the distribution

### Program highlights:

- Implementation of a digital water supply management platform
- Development of a digital twin of the distribution network
- Optimized operational control and reduction of non-revenue water (NRW)
- Integration of technical, operational, and consumption data in a single environment
- Scalable architecture aligned with the SOFIA strategy and European regulatory frameworks




DMAs (District Metered Areas) in the distribution network

Dashboard with key KPIs and network alerts

network, corporate systems, and field devices, bringing them together in a coherent information ecosystem that is accessible in near real time.

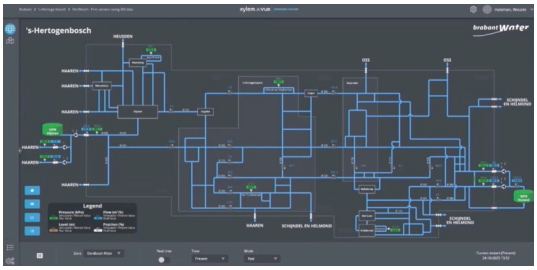
The heart of the solution is the **Smart Water Engine,** which serves as the data integration and normalization layer, unlocking analytics and enabling the development of targeted applications for managing non-revenue water, monitoring smart meters, and providing advanced network status visualization. This is coordinated through the **Real-Time What-If Scenarios** application and the **Operational Intelligence** modules, which provide a unified operational overview of assets, alarms, and events, as well as a digital control center that supports both daily operations and medium- and long-term planning. The deployment has been carried out in stages, following the roadmap defined in the SOFIA 2022 Blueprint, thereby minimizing risks, supporting adoption by teams, and ensuring the system's future scalability.

## Results

Deploying Xylem Vue has led to tangible improvements in Brabant Water's ability to manage its distribution network in an integrated data-driven environment. For the first time, the project has consolidated a **common digital environment that brings together data from corporate systems, field sensors, smart meters, and hydraulic models,** establishing a solid foundation for the progressive deployment of the network's digital twin. The digital control center and display environment provide a unified view of assets, alarms, and events, **improving coordination between teams and boosting efficiency** in field operations.

At operational level, the availability of near real-time water balances in the measurement and control areas has **improved the management of non-revenue water,** enhancing the identification of deviations, potential leaks, and anomalous behavior, and enabling a proactive response to bursts. The combined analysis of measured flows, pressures, and consumption has increased understanding of the hydraulic behavior of the network, enabling **actions to be prioritized based on robust technical criteria** and reducing dependence on reactive approaches. This new layer of information has facilitated device status monitoring, burst alerts, early leak detection in indoor facilities and improved consumption pattern analysis, laying the foundations for more proactive service management and a more transparent relationship with users.

At strategic level, **the project has demonstrated the technical and organizational viability of the model defined in the SOFIA program.** It serves as a proof of concept that validates the architecture, processes, and data governance required to scale the solution. The platform is now ready to be progressively expanded to more DMAs and smart meters, as well as to incorporate new advanced analytics, predictive maintenance, and energy optimization capabilities, aligning Brabant Water's digital transformation with European sustainability, efficiency, and resilience goals.



Synoptic overview of the water distribution network in the 's-Hertogenbosch DMA


Example of simulation performed in the Real-Time What-If Scenarios application

> "The most valuable part of the platform is its ability to forecast what will happen if a particular scenario occurs."


Wouter Huisman, Program Manager SOFIA, Brabant Water

> "By building intelligence into our existing assets, we gain greater visibility into our networks and a greater understanding of our operations. This is a major step forward in optimizing our operations and ultimately, better serving our clients."


Hanneke van de Ven, Sector Director Distribution, Brabant Water





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