



SUMMARY

Evides Waterbedrijf

Industry

Water, Wastewater

Business Value

- Business Value
- Asset Health and Value
- Data Democratization
- Situational Awareness
- Process Optimization

PI System™ Components

- PI Server™
 - Data Archive
 - Asset Framework
- PI Integrator for Esri ArcGIS
- PI ProcessBook™
- PI DataLink™
- PI WebParts™
- PI Coresight™

Partners

- Esri

Parting the Waters With Data to Improve Service For Consumers and Industrial Water Customers

To better serve its 2.5 million consumers and over 600 large industrial customers, Evides Waterbedrijf created a software platform called GAMEs that leverages the OSIsoft PI System, Esri® ArcGIS®, and TaKaDu to give its employees the power to isolate pipe bursts, monitor water flows, enhance situational awareness, and improve responsiveness across Evides' extended service territory. Jan Urbanus described the program at the 2016 OSIsoft EMEA Users Conference in Berlin and outlined next steps.

Evides Waterbedrijf is responsible for managing a highly complex network of resources spread across a large geographic area that is absolutely critical for the daily lives of the people and cities within its service territory. The company serves an estimated 2.5 million consumers in the Netherlands and industrial customers in the Netherlands, Belgium, and Germany. It is the second largest water company in the country and the largest one for industrial water: Evides delivers 160 million cubic meters of water to consumers and 144 million cubic meters of process water to industrial users every year through a far-ranging infrastructure that includes 14,000 kilometers of water mains and 7,000 kilometers of connections. Evides also processes 100 million cubic meters of wastewater.

In 2014, Jan Urbanus, Manager Unit Project Management at Evides, saw a presentation at the OSIsoft EMEA Users Conference by Brabant Water on visualizing water data. The ideas from that session helped spark the inspiration for GAMEs, or Geographic Asset Management @Evides. GAMEs is a technology platform that combines operational and equipment data from the PI System with geographical and other information to give employees a richer sense of Evides' operations and help them collaborate on strategies and solve problems. GAMEs is part of H2020, a company-wide research program. "There is useful information hidden in the data," said Urbanus. "A picture is worth a 1,000 words, or in this case 1,000 figures."

In the first stage, Evides launched a pilot program called GAMEs Playground with the goal of creating four "functionalities" or widgets for combining PI System data with ESRI ArcGIS in the first twelve months. Instead, it created 50 functionalities in GAMEs Playground, including functionalities for "seeing":

- data on the current state of the soil across the service area
- the current status of production plants
- the location of potentially vulnerable customers
- flooding depths

- charts detailing the status of existing risks

After the initial integration and set-up, “building functionalities is not difficult and not expensive,” he said.

Every ten seconds Evides collects data on water pressures and flows from the sensors on its water mains and every thirty seconds the data on GAMEs is refreshed. On a single screen, employees can view multiple functionalities – current pressures, the relationship of municipal boundaries with Evides’ assets, the location of water meters – at the same time. Users can also examine a wide geographic area or zoom down to individual households.

In 2016, a large (630 mm diameter) pipe burst in Vlaardingen. Pressure dropped from 30 meters to 6 meters while flow increased from 700 cubic meters per hour to approximately 4,300 cubic meters per hour. Urbanus showed how GAMEs pinpointed the individual pipe that burst and delivered information on which valves needed to be closed to isolate flooding. With this information, Evides restored normal operations in around two hours. GAMEs also allowed Evides to send messages to customers in the affected area to warn them of the problem.

Big Data analytics in GAMEs is also used in conjunction with TaKaDu, an event management solution developed for the water industry that uses smart analytics. The PI System sends five minute snapshots of raw data every hour to TaKaDu. TaKaDu then analyzes the data, detects anomalies, and enables Evides to manage events such as leaks, pressure issues, data and sensors problems, and more.

GAMEs is also helping Evides detect poor quality data and “orphaned” data by visualizing data that would otherwise not have been reviewed or combined with similar sets of data in different silos.

Evides is now developing a production version of GAMEs Playground called Serious GAMEs which can be integrated into Evides’ day-to-day operations. Serious GAMEs will initially include 20 of the most robust functionalities from GAMEs Playground. “We expect our control system will be able to act faster and be more effective and be more efficient because of this too,” Urbanus said. “And as a result, we expect a decrease in customer minutes lost.”

Urbanus further said that GAMEs has sparked collaboration between younger and older employees and interest in using data in unusual, novel ways. “Once we started and could show them some pictures from the GAMEs platform, they became enthusiastic and began asking questions like ‘Can you show me the relation between hydraulic data and water quality,’ he said. “From the push in the beginning it became a pull to the end. We now have a backlog of some 13 functionalities we have to build.”

“There is useful information in the data. A picture is worth a 1,000 words.”

– Jan Urbanus
Manager Unit Project
Management

Urbanus, Jan F.X. *Intuitive Interpretation of Big Data Using Esri ArcGIS and the PI System*. OSIssoft.com. 27 September 2016. Web. 01 January 2017. <<http://www.osissoft.com/Presentations/Evides--Intuitive-Interpretation-of-Big-Data-Using-Esri-ArcGIS-and-the-PI-System>>.

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