



SUMMARY

MPWiK Wrocław

Industry

Utilities

Business Value

- Business Intelligence
- Operational Insight
- Performance Optimization
- Process Controls
- Real-time Analysis
- Rich Visualization
- Predictive Maintenance

PI System™ Components

- PI Server™
 - Data Archive
 - Asset Framework (AF)
- PI Vision™1
- Notifications

Predicting Leakage Issues Using the PI System

The Municipal Water and Sewage Company Inc. (MPWiK) in Wrocław is one of the largest municipal water and sewage utilities providers in Poland. It has been operating since 1871, and has grown into two water treatment plants, 2,000 km of water network and 1500 km of sewer network, that together serve over 630,000 residents. There are approximately 60,000 water meters that monitor water flow and pressure across that network to prevent pressure increases and decreases that can lead to pipe breaks and leaks. To reduce faults on the network, lower costs and improve customer satisfaction, MPWiK turned to the PI System to take a predictive approach by integrating meter data with IT/OT data.

The Red Carpet Incubation Program (RCIP)

To gain better visibility into its network and customer data, MPWiK joined the Red Carpet Incubation Program (RCIP) from Microsoft. Using the PI System to create a centralized database that connected both production and customer data and Azure Machine Learning, MPWiK sought to build predictive models that would allow the team to forecast water demands for the next 24 hours to better schedule pump operations. The team knew that the PI System “will help us better understanding... better set our pumping schedule and production planning,” said Piotr Słomianny, CFO at MPWiK, during the 2017 OSIsoft EMEA Users Conference in London. “The main benefit of this project will be better use of our assets, so it is very important for us.”

Creating a Single Platform for Real-Time Data Analysis

To gain the right insights and reach its predictive goals, MPWiK implemented a centralized platform that connected each of its disparate data systems and allowed its team to perform real-time analysis and data visualization. The PI System served as the foundation of what would become the Smartflow system, which connected all real-time data sources, including:

- Water production
- Water network with 60,000 flow meters
- Noise loggers
- Weather station
- Sewage well level sensors
- Piezometers

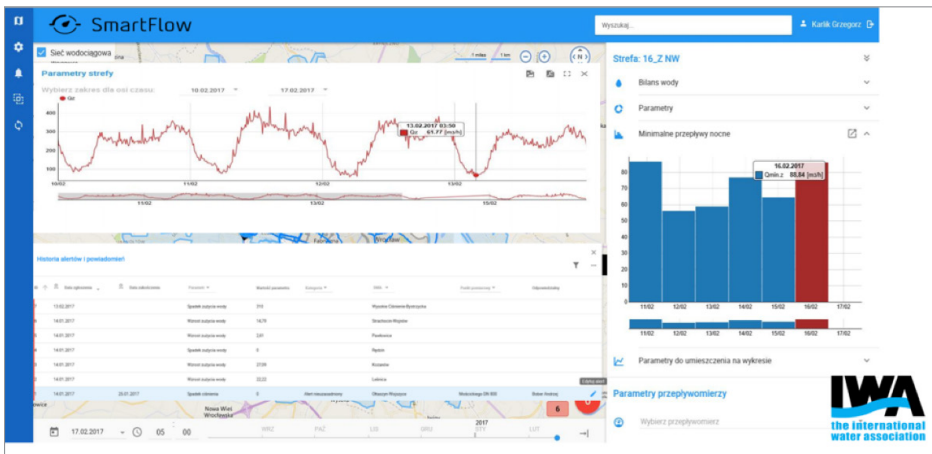
Connecting and Visualizing IT and OT Data

This newly connected Smartflow system brought together 200,000 various data points in a central data repository. Previously, every week, one employee would check water sensor levels in pipes by opening each of the 80 devices, which was a time-consuming process. Now, PI Notifications are set for flow meters, pressure gauges, piezometers, and other gauges, allowing team members to be alerted if activity exceeded pre-defined thresholds. Using PI Vision, team members can now quickly understand water levels in pipes. “The OSIsoft PI System has enabled us for convergence of IT/OT systems for real-time data access for analysis for visualization,” said Michał Ślósarz, IT Manager at MPWiK.

The water production data from the PI System can also be visualized in Tableau as part of the Call Data Record (CDR) implementation. “I remember one call a day from the users about the data problems. And now... we have the PI System and central data repository... It shares aggregated data directly to the Tableau and it's a quick and easy way to increase reliability of data,” Michał noted. “For me, no more phone calls about data problems from users.”

“SmartFlow system has now only one source of all the needed information. This is very important for us. In turn, detection time and downtime were reduced. Now, our employees don't have to login to many systems, they have all the needed information in PI Vision.”

– Piotr Słomianny, CFO



SmartFlow Analytics: The PI System underpins the Smartflow system, which allows MPWiK to visualize and analyze real-time data from multiple sources.

Real-time Data Nets Real Results

With the Smartflow system, MPWiK can monitor the condition of older pipes and quickly detect hidden leakages and set pump levels to prevent future incidents. Overall, the PI System-based Smartflow platform has improved the stability of the network leak diagnostics, reduced fault detection time and downtime, and lowered network faults, resulting in cost savings. In addition, employees can visualize infrastructure data by logging into one system, giving them a complete, real-time picture right at their fingertips.

Given the success of the implementation, MPWiK plans to integrate its financial ERP, time series, relational, unstructured, and GIS data into the PI System to gain a deeper understanding of the business and improve future decision making. For more information about MPWiK and the PI System, watch the full presentation [here](#).

¹PI Coresight was renamed to PI Vision in 2017.

Słomianny, Piotr / Ślósarz, Michał. The Road to the IT/OT Convergence. OSIsoft.com. 18 October. 2017. Web. 26 December 2017. <<https://www.osisoft.com/Presentations/Wroclaw-Water-and-Sewage-Authority-s--MPWiK-sx-OT---IT-convergence/>>