

Optimizing Water Utility Operations Through Data-Driven Insights

By Sheila Kee, Senior Product Manager, Itron

For most water utilities, efficient management of water distribution networks is hampered by a lack of visibility into critical infrastructure. Underground pipes make it challenging to detect problems such as leaks. Infrequent meter reads can lead to inaccuracies in assessing billing discrepancies. When the volume of water billed fails to match the volume pumped, many utilities simply don't have the data to identify the source of the problem. And those that do are often forced to make manual calculations using spreadsheets.

This complicates the issue further because utility staff may not have the time or expertise to perform in-depth data mining and analysis. If a utility should be fortunate to have dedicated data analysts on staff, they can still overlook issues when different data sets are insufficiently integrated.

[Automated solutions offer a path forward.](#) Combining advanced metering infrastructure (AMI) with analytics software enables continuous monitoring and

analysis, helping utilities detect anomalies and prioritize actions effectively.

The Role Of Automated Solutions

With the hourly data provided by [AMI](#), an automated solution can [provide analyses](#) to inform operators of potential issues within the distribution system. For example, water utilities can see daily, weekly, or monthly water balances. From there, the system can alert them to more specific issues such as higher-than-normal usage during winter months, which could be the sign of a leak.

Utilities can further enhance their insights by incorporating pressure monitoring and other sensors. This data enables operators to differentiate real losses (e.g., leaks) from apparent losses (e.g., billing errors, metering inaccuracies, or theft). This provides a more comprehensive understanding of the system's health and can help pinpoint the source of problems.

Challenges In Integration

Integrating automated solutions into existing infrastructure can be complicated

when data resides in disparate parts of the organization, requiring manual effort to consolidate. These non-automated solutions may lack the scalability and robustness of specialized platforms from experienced providers. By comparison, automated solutions can pull from a range of sources, including meter data management, GIS, hydraulic models, and customer information systems, as well as many SCADA systems.

Smaller utilities may struggle to collect and organize the right granularity of data, whereas larger utilities that have invested in AMR or AMI systems may be drowning in granular data but unable to apply it usefully. In both situations, an automated solution can help.

But the biggest challenge to getting started has been the willingness to recognize NRW as a problem. In areas where water is seemingly abundant, losses as high as 40% are evident and this has led to some inertia. However, given rising water scarcity issues, such as the kind recently experienced in California

and many other parts of the U.S., it is becoming increasingly difficult to ignore NRW issues, and utilities are increasingly under pressure to reduce NRW both to keep costs down and preserve resources.

The Path Forward

Enhancing water utility operations through automated data analysis is both a technological and cultural shift. It involves leveraging advanced tools and algorithms to uncover hidden insights within the data. Furthermore, it demands a shift in mindset, where the significance of NRW and water conservation is fully recognized.

Automation and advanced analytics can help utilities navigate the complexities of water distribution networks while ensuring sustainable access to the communities they serve. ■

Interested in learning more? [Listen to the recent webcast](#), *Driving Toward Sustainable Water Management: Challenges and Strategies for Water Utilities*.

About the Author

Sheila Kee brings more than 20 years of experience in the water and technology sectors. She has extensive experience in solution marketing, product management, and strategic planning. As Itron's Senior Product Manager for Water Operations Management, she is responsible for delivering value-based outcomes to water utilities globally focused on non-revenue water management and reduction. Her passion is to help water utilities optimize distribution operations with the ultimate goal of delivering continuous clean drinking water to the citizens they serve. Sheila holds a bachelor's

degree in business and received her Master of Business Administration with a specialization in management of innovation and new technology.

About Itron

Itron enables utilities and cities to safely, securely, and reliably deliver critical infrastructure solutions to communities in more than 100 countries. Our portfolio of smart networks, software, services, meters, and sensors helps our customers better manage electricity, gas, and water resources for the people they serve. By working with our customers to ensure their success, we help improve the quality of life, ensure the safety, and promote the well-being of millions of people around the globe. Itron is dedicated to creating a more resourceful world. Join us: www.itron.com.