



### Using Data to Control System Leaks

New advances on a wide variety of automated water utility functions have emerged that now allow utilities to utilize data to support water distribution functions. In the process, water utilities are moving away from a purely service-orientation toward a more information-oriented one. A wide variety of use cases exist, including:

- Advanced metering
- Leak detection
- Smart pumping
- Pressure modulation
- Water quality
- Asset management

The rapid growth of the smart water industry can lead one to ask the fundamental question, what exactly is smart water? According to WaterWorld magazine,

*“Smart water can be broadly defined as a group of emerging technological solutions that help water managers operate more effectively. Smart water solutions harness state-of-the-art hardware and software solutions to provide increasing levels of system intelligence, visibility, automation and control, while enhancing customer service through new channels of engagement. These technologies are increasingly being delivered via new business models, like software-as-a-service (SaaS), or through the cloud.”<sup>1</sup>*

The drivers for smart water programs are varied and often include water scarcity, regulatory requirements, and market dynamics. However, at the core lies a drive to utilize development in data management and communications to increase operating efficiency within the water distribution system. With the inherent differences that exist within the ecosystem of water utilities lies the truth that smart water initiatives can vary.

As water distribution mains continue to age, the threat of system leaks that result in increasing levels of non-revenue water continues to grow. The ability to enable acoustic sensors across the water distribution system delivers new tools to water utilities to be proactive in addressing the issue.

It is often difficult for water utilities to identify many leaks that occur in locations where normal detection would be difficult – for example, underground or in drainage ditches. As these leaks can generate significant amounts of water loss, non-revenue water amounts can increase dramatically. For

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<sup>1</sup> Maize, W. (March 1, 2018). “Smart Water: What to Expect in 2018”. WaterWorld.

example, in 2013, 226 water utilities located in Georgia collectively reported over 51 billion gallons of water lost to leaking pipes.<sup>2</sup>

Acoustic leak detection is a form of technology that utilizes sensors placed across the water distribution system to address this issue. The sensors monitor sounds within the water distribution system and identify acoustic anomalies that correspond with leaks. The impact of automated leak detection programs can be quite dramatic. For example, San Jose Water has saved over 40 million gallons of water in under one year through the identification of 53 leaks, 28 of which were found on San Jose Water pipes and the other 25 in customer-side leaks.<sup>3</sup>

Water utilities are continuously seeking to implement programs to enable them to better serve customers and to become more operationally efficient. Smart Water involves a non-stop, on-demand, re-design journey of the business models, business processes, technologies, organizational structures, and applied human capital to seamlessly leverage existing and new trends into a more profitable, faster growing, and more customer driven utility reality. Utilities that implement smart water programs fundamentally believe that:

- Smart water delivers success by committing to pervasive performance management, which helps streamline processes by creating a smart, agile and aligned utility
- Smart water enables the close monitoring of performance, flexible integrated planning, and reestablishes and/or enhances trust with stakeholders
- Smart water also drives insight in investments and offers techniques that help in rethinking strategies and managing innovation as a competitive advantage

Small Shovel can help utilities to maximize the effectiveness of water operations. By managing the entire system functionality end-to-end, Small Shovel works as an expert outsourced partner to:

- Manage the IT/OT requirements of the water metering system
- Use system data to identify the portions of the service territory experiencing the highest leak rates
- Perform regular system evaluations to identify potential system vulnerabilities

How can Small Shovel help your utility? Contact us at [info@smallshovel.com](mailto:info@smallshovel.com) to find out!



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<sup>2</sup> Water Loss Audit Results (2013). Georgia Department of Environmental Protection. Reported by Kunkel, G. "Water Network Leak Detector – New Tools for Water Utilities" (July 8, 2016). FluksAqua insights.

<sup>3</sup> "Preventing Water Loss with Acoustic Leak Detection Technology" (February 12, 2019). San Jose Water.