

Industry Insights

ANALYSIS AND EXPERTISE

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Helping Utilities Help Each Other to Use Digital Tools

BY CATHERINE CURTIS, CHERYL K. DAVIS, AND SHARON PETERS

BAYWORK, a regional consortium of water and wastewater utilities collaborating on workforce reliability issues in the San Francisco Bay Area, has found that most utilities—whether large or small, urban or rural—aren't prepared to take full advantage of the potential benefits of digital tools. To help, BAYWORK has been talking to utilities about their digital successes, challenges, and lessons learned.

Operational reliability of water and wastewater utilities depends on having sufficient staff in mission-critical jobs and preparing that staff to do the technical work essential for public health and safety. BAYWORK's Digital Worker Initiative began with research on the digital tools its members were using, deepened into focus group discussions with utilities of different sizes, and expanded into workshops with utilities across the country at national conferences. Based on the concerns expressed by participants in an early 2020 workshop at the WEF/AWWA Utility Management Conference in Anaheim, Calif., BAYWORK initiated work on a report, "The Digital Worker: Using Digital Tools to Deliver Water Services" (https://bit.ly/Digital_Worker). The report was completed in May 2021 with the support of an expert advisory group that included water professionals from utilities, professional associations, and consulting companies from across the United States and Canada.

FOCUS AREAS

The report identified challenges and lessons learned in relation to the effective use of digital tools (software, hardware, sensors, etc.) by water utility employees who use such tools to perform their work. It won't be long before all utility employees will need to be able to use digital tools, although the level and type of digital skills needed in different job classifications will vary. The following comments were among

those collected on the nine topics detailed in the report:

Selection of Digital Tools. "It's rare for there to be a really careful, comprehensive evaluation of the need for action, or whether purchasing or leasing a new tool is really the right action to take."

"Everyone is a subject matter expert in their respective area. It's important to hear them out—questions, concerns, and feedback. Involvement from those who will be using the tools is a must."

Organizational Culture. "The greatest factor is trust—of management, vendors, consultants, colleagues, and trust in their own abilities."

"Utilities need champions for the new and what's possible."

Coordination With Existing Workflows and Systems. "When a division asks for a new digital solution, we look to see whether or not an existing system could fill the need."

"It's common for utilities to discover workflows that will be impacted when they are already in the middle of a software implementation project."

Human Resource (HR) Issues. "Municipal HR staff don't have industry-specific knowledge, so they take a cookie-cutter approach with classifications, compensation, and job descriptions. Our utility has the same job categories as other agencies, impacting our ability to recruit, hire, and compensate people with digital skills."

"Many HR groups lack the resources to support job modifications, especially when they support numerous agencies. This also limits their ability to help with

workforce planning, technical training, job documentation updates, timely and effective recruitment, or modifying salaries to meet requirements."

Information Technology (IT) Support.

"It's important for IT staff to focus on enabling functions rather than owning these functions as we transition into entire organizations based on IT."

"Work with IT to understand the process they employ to identify projects, prioritize projects, and get work done. This may mean that you have to learn new software to submit requests. Understand that when you involve IT, they may uncover larger issues and add additional hurdles. You may not like this. Learn to work with IT to understand the issues and work with outside resources, such as vendors and consultants, to find solutions and alternatives."

Initial and Ongoing Staff Training.

"Staff training is absolutely necessary to maintain staff skills, help them learn new ones, and empower them to shape the future of the organization as well as understand their roles and responsibilities. It's a powerful way of demonstrating ongoing commitment to staff and their development. Investing time and money to encourage their professional growth creates an environment of excellence."

"Training needs to be tailored to different groups and provided at the right time. This almost never gets enough time and attention. Start with an analysis of what employees already know and what they need to learn. Apply the principles of adult learning coupled with coaching and opportunities to practice."

Developing Qualified Candidates With Digital Skills.

"Are candidate development programs keeping up with the requirements of these positions and recognizing the additional training needed by the digital water employee?"

“The importance of a person’s willingness to learn can’t be overstated.”

Artificial Intelligence (AI). “We think of AI as some sci-fi thing, but we are surrounded by it. Machine learning and iteration are helpful to improve how we think and how we do our business. Understanding the value and relevance of AI is critical.”

“The water sector is and will always be about people. Often when our workforce thinks about AI, we think about it automating or replacing our jobs. I believe it’s the opposite, where water professionals supported by AI can bring more value with IT support. I promote the term collective intelligence, or CI, rather than AI.”

Cybersecurity. “There are so many little utilities that are underfunded IT-wise, and there are so many resultant operational and cybersecurity risks. I truly find it disturbing that many city departments—including in our city—have operational and cybersecurity risks because of being underfunded. Cities are often the target of cyber criminals because they are easy prey.”

“Security awareness training is a must for the digital worker. Intelligent targeted training should be done to address workers who require additional assistance.”

KEY INSIGHTS

BAYWORK subsequently built on the “Digital Worker” report, providing a wide range of materials that are available for free on the BAYWORK website (www.baywork.org) by clicking on the “Resources” link. In addition, BAYWORK and AWWA are creating an online instruction manual on the effective use of digital tools that will reflect these lessons learned.

Several key insights have emerged from all of these investigations that help explain why the water sector is having so much difficulty using digital tools that have been available for decades. One factor is that digital tools have been acquired incrementally, were



implemented unevenly, and aren’t fully documented. A lot of software and hardware tools have been implemented by various business groups over time, making it difficult for even IT staff to know what tools are in use and by whom. As a result, current staff commonly try to build on and integrate a tangled web of processes and systems.

Another challenge is that some utilities haven’t grasped that all water-sector jobs are now digital jobs. Water organizations’ business systems (e.g., emails, spreadsheets, documents, and internet access) are now embedded in all business functions. Employees shouldn’t be excluded from the basic communication tools of the organizations that employ them.

Finally, it should be noted that most of the challenges identified in the BAYWORK “Digital Worker” report are neither new nor specific to digital tools. For example, utilities have tended to rely on the knowledge of experienced

staff rather than investing in standard operating procedures, staff training, and knowledge management. The downside of failing to invest in these capacities becomes apparent when experienced staff leave the workforce and inexperienced staff need to learn how to use new tools.

Similarly, few utilities have staffed their HR business units to support analysis of new knowledge and skills required, development of new job categories, rapid updates to the qualifications of skills needed for existing positions, union agreements consistent with new requirements, or modifications to recruitment practices. Few utilities have the breadth of expertise to support a range of systems or alternative mechanisms for acquiring needed support from outside their organizations. Salaries and processes for adjusting them may reflect the expectation of employee longevity rather than the level that has become more common in recent years.

Certainly, utilities face new and heightened challenges such as cybersecurity, but utilities have new opportunities—especially in relation to AI and CI. However, the water sector often underinvests in key processes such as initial and ongoing training, analysis of existing and desired tools, and integrating new digital skills and knowledge for recruitment.

Utilities can learn from each other about how to improve their ability to use today’s digital tools. It will take much more work than purchasing a product, but the good news is that utilities have the capacity to collaborate, and a range of resources is available for free on the BAYWORK website. If utilities address core capacity issues, such as organizational culture, HR, IT, and the ability to analyze the interrelationships of workflows and systems, they will enhance their ability to address many other issues.