Panasonic

Mobile Solutions for Water Utility Field Workers

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TOUGHBOOK®

Water utility professionals face increasing pressure to improve efficiency. Aging infrastructure, tight budgets, and new, more stringent regulations force utilities to find better ways to use resources. Mobile technologies can offer solutions to improve a utility's total cost of ownership (TCO) by boosting productivity, saving time, and increasing customer satisfaction.

Mobility for Water Utilities

Mobility has always been essential for water utilities. Service areas may be large or small, located in rural areas, small towns or large cities. Infrastructure is located throughout the service areas, much of it underground. Treatment plants, wellfields, lift stations, laboratories, and other major components are spread throughout, often in remote locations away from central offices.

Mobile Utility Staff

Most utility staff are mobile and scheduled to work shifts around the clock. They are often on-call and have take-home utility vehicles. Some of the most common mobile utility positions include:

- Meter Readers
- Distribution & Collection System Operators
- Lift Station Technicians
- Treatment Plant Operators
- Mechanics & Electricians
- Cross-Connection Specialists
- Engineers
- Construction Inspectors
- Project Managers
- Wellfield Technicians
- Customer Outreach

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Moving Towards Mobile Technology

The move from paper-based operations to mobile technology provides many advantages for water utilities. Converting from paper to digital technology removes a step in each process, eliminating lost or unreadable information, saving time, increasing accuracy and streamlining operations. Here are some typical benefits:

Automated Meter Reading

Many utilities are moving to automated meter reading (AMR) solutions. AMR meters transmit consumption data using radio frequencies to mobile receivers for drive-by meter reading. By eliminating human error, meter readings are more accurate. The time saved with drive-by meter reading versus walking the routes can be dramatic. AMR also reduces the number of personnel and vehicles required for meter reading, resulting in major cost savings and more accurate readings and billings.

Instant and Accurate Notifications

Mobile devices in utility vehicles provide instant notification for service calls, alarms, and emergencies. In addition, detailed information can be sent to the devices such as the specific problem, location, and customer information. This allows employees to respond and resolve the issue more quickly before the situation worsens. Timely, accurate notifications improve customer service and reduce the risk of regulatory violations.

Better Asset and System Performance Tracking

Some utilities are installing sensors to detect water pressure and quality. Many are implementing Geographic Information Systems (GIS) and asset management software. Mobile technology combined with these systems allows water professionals to view sensor data in real-time to detect locations of leaks or pressure transients. By repairing leaking pipes or preventing leaks by managing pressure, precious water is saved. This data can also be recorded, mapped, and tracked to view trends in the system and assist with capital improvement planning.

Water quality issues can be seen and addressed immediately as well, to protect public health and the environment. Recurring problems can be resolved by adjusting system parameters.

Automated Work Order Scheduling

Water utilities are comprised of a huge number of pipes, valves, hydrants, wells, pumps, generators, blowers, and complex treatment technology. Each piece of equipment needs scheduled maintenance—and failures or breakdowns need repair. Most utilities use a Computerized Maintenance Management System (CMMS) to schedule, assign, and track completion of these tasks. With mobile technology, crews have a detailed work schedule at their fingertips. Completed work orders can be closed out immediately versus paper copies that get lost, torn, or soaked. More efficient routes can be mapped out for the day, improving efficiency.

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Locating Buried Infrastructure

Much of a water utility's infrastructure is underground. Many utilities use GIS to map their system and record data such as pipe size and material or manhole depth. Having GIS on a mobile device allows field workers to locate buried infrastructure more quickly when a failure or emergency occurs. Workers also have important information they need, such as valve type and size. This is especially critical for locating valves to shut off water and prevent property damage when a large break occurs.

Administrative Tasks Streamlined

Filling out time sheets, vehicle use tracking, and other administrative tasks can be time consuming. When these tasks are completed at the end of the day or the next morning, people may not remember details correctly. Automating these tasks on a mobile device saves time and results in more accurate reports.

Improved Disaster Response

After hurricanes, earthquakes, floods and other disasters, the landscape may be changed dramatically, making it difficult to find even above-ground infrastructure. With GIS maps on a mobile device, responders can find system assets and perform damage assessments more quickly. Most utilities have Supervisory Control and Data Acquisition (SCADA) systems as well. With mobile technology, SCADA can send alarms and notifications of failed equipment directly to the field crews for fast response. Also, customer issues can be sent instantly to a mobile device.

During the recovery period, timesheets and materials tracking are especially important to obtain reimbursement from the Federal Emergency Management Agency (FEMA). With mobile technology, that process is easier and more accurate.

Mobile Technology Success Story

Northumbrian Water

- Better workforce efficiency and effectiveness
- Improved communication and teamwork
- Faster response and documentation of incidents
- More accurate location of utilities

Northumbrian Water provides water and sewage services to 4.5 million people throughout England. Customer service technicians and maintenance teams were using personal digital assistant (PDA) devices and laptops. This required them to carry multiple devices. The devices also had outdated communications capabilities.

Northumbrian Water began a thorough selection process and determined eight mobile devices were acceptable for testing. Thirty field staff in two groups tested and evaluated the different devices.

Both the technicians and maintenance teams rated the Panasonic FZ-G1 10" rugged tablet as their top choice. They were impressed with the truly rugged construction of the TOUGHBOOK and that it can withstand the outdoor environment. They also appreciated the touchscreen that was easily readable in bright sunlight. Compatibility with existing software and communication was also important.

Northumbrian Water's field workers now have over 500 devices. Staff are connected in real-time with the organization and feel part of the team even though they're remote. They can locate utilities with GIS, take and send photos of incidents, receive their work schedules, perform assessments and send reports from the field. They're connected to email and internet. The units have integrated GPS to locate work destinations quickly.

Richard Knaggs, Northumbrian's Change Manager noted, "they are a game changing technology that has already opened up a world of new possibilities for improving the efficiency and effectiveness of our workforce."

Today's Mobile Solutions for Utilities of the Future

Mobile technology provides numerous solutions for utility challenges. These solutions can be flexible and scalable depending on the utility's requirements.

Implementing even a small mobile technology project provides a foundation for additional mobile technologies. Utilities can continue adding functions to increase data accuracy, boost efficiency, save costs, and improve overall operations and customer service.

How to Get Started Automating Paper Processes

Engage mobile workers to participate in decision-making.

Field workers will be primary users of the mobile technology and must be informed and on-board for successful implementation. These employees have in-depth knowledge of the work processes and issues or problems that arise during the workday. They can provide insight and suggestions on special requirements for the technology based on their experience in the field.

Determine which tasks or processes will be automated and prioritize implementation.

What are the most pressing problems that could be solved with mobile technology? Solving which issues might reap the most cost savings? What efficiencies are the most important for the utility? These are some of the questions that should be answered when determining which processes to automate first.

Brainstorm with all stakeholders to determine which processes could be improved with mobile technology. Then prioritize those projects based on the utility's specific needs.

Decide on the Implementation Strategy

While some utilities prefer to implement a comprehensive project, others prefer to start with a small project then add remaining solutions incrementally. Each utility is unique, and must determine their implementation strategy based on priorities, budget, and other factors.

Research and evaluate solutions.

Research mobile solution providers. Talk with other utilities to find out what works well for them. Engage with technical experts service providers or manufacturer's representatives that can help you turn your strategy into a plan; determine your technical requirements and the equipment, software, and services you will need to acquire. Ensure compatibility with your existing software and equipment. Estimate the costs to include hardware, software, integration and training.

+ HOW DOES PANASONIC ADDRESS THE NEEDS OF THE UTILITY INDUSTRY?

- **Rugged devices to handle the harsh environments experienced by a mobile utility workforce**
- **Laptops, 2-in-1's, tablets and handhelds**
- **Customizable solutions**
- **Variety of options for connectivity**
- **Industry leading services – warranties, hard drive replacement, repair and deployment**
- **Easy to integrate with corporate systems**
- **Exceptional reliability and low failure rate**

Choosing the Best Mobile Device for Your Application

Mobile devices are exposed to harsh environments. For water utilities, extremely rugged devices are required. Field workers often use them in extreme weather, bounce them around in trucks, drop them, and expose them to chemicals, gases, and wet or dirty conditions.

When choosing the devices, list the environmental conditions they will be exposed to and other physical requirements, such as:

- Temperature extremes
- Water, dust, dirt, gases
- Rough use and potential for being dropped
- Use with gloves
- Use in high glare light or at night
- Use in or out of vehicle

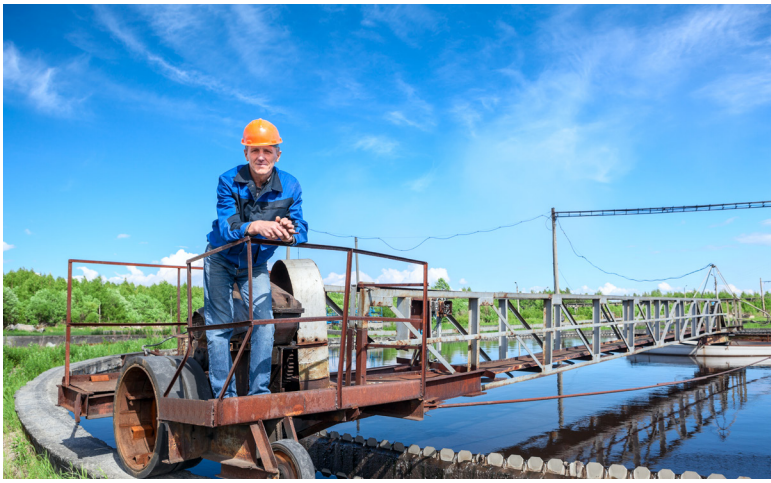
Decide which size and type of devices are preferred.

Preferences may vary by position or employee. Consider how the device will be used in each case.

- Laptop
- 2-in-1
- Tablet
- Handheld

Determine what software the devices must work with.

Devices must often be compatible with a variety of software programs, including GIS, SCADA, Customer Information Systems, Utility Billing, CMMS, asset management and enterprise software.



What type of connectivity is needed?

Cellular, Narrow Band IoT, Wi-Fi?

How is security addressed?

Is security software embedded in the device or must it be downloaded?

Are security protections built into the hardware and firmware?

Against what threats is the device protected?

Water utilities can streamline operations, save costs, and boost customer service using mobile technology for their field workers.

For more information about how Panasonic can help water utilities improve efficiency, explore our website or visit the Knowledge Center.