

Utility Mobile IT Adoption

Going Mobile Is Smart

Overview

Although utilities have greatly improved back office operations, they are still feeling pressure to increase the efficiency of routine activities. A wide range of drivers is fueling this pressure. Deregulation is making the industry increasingly price competitive, while government and industry compliance requirements are becoming ever stricter. As transmission and distribution infrastructure continues to age, so, too, does the workforce. Qualified people are getting harder to find and more expensive to hire. Customers are demanding 24/7 availability, environmental awareness, accurate billing, and quick fault resolution. In addition, utilities wish to be better prepared for unexpected incidents such as power outages.

To help meet these challenges, companies are looking to adopt mobile solutions to further control

costs, improve productivity and make better decisions throughout their organizations.

The mobile solution described in the following Advanced Metering Infrastructure (AMI) case study was developed by Capgemini in collaboration with Hydro One Networks, one of our many client partners in the utility industry. The challenge was to deploy an Advanced Metering Infrastructure (AMI) that spans a geographical area twice the size of Texas. Capgemini was asked to develop a robust set of processes and tools to enable the mass meter change operation, and in response, we designed the Meter Change Automation (MCA) approach. MCA is a leading industry example of how an industrialized process—specifically, a mass replacement of over 1.2 million electrical meters across Hydro One Networks’



service territory in Ontario, Canada—is being enabled through the latest mobile technology and tools. The result will be significant cost savings to the client.

With our global AMI project expertise and the collective intelligence of the world's leading utility companies behind us, Capgemini is in a position to offer advice on what to look for when considering mobile solutions and to provide leading practices for their implementation within the utility industry. In addition, this report looks at the “new” mobility, and outlines several high-payoff mobilization areas that all utility executives should consider.

The AMI Case Study

Consider this scenario. Hundreds of field workers travel to individual homes and businesses across Ontario. Their mission is to convert over 1.2 million conventional electric meters to smart meters. The initial estimate for each end-to-end change was two to three weeks to complete. But these field workers carry small, wireless, hand held PDAs and tablets that enabled the change to be completed the same day. Rugged and adaptable to extremes in climate, the devices manage every step of the process, from creating the initial paperless work order to documenting the meter change and changing the customer over to a new billing system.

Meanwhile hundreds of miles away, supervisors back at the project office monitor the installations as they take place, in real time. Of particular importance from a customer service point of view, are exceptions where installation cannot be completed. These issues are quickly resolved by on-site changes to the work order, and if additional equipment or services are required, both are dispatched quickly to the site, plus recorded in inventory.

A strong return on investment is only the beginning of the bottom line results. In fact, a strong ROI doesn't

even touch on the immediate benefits of employee and customer satisfaction, or the long term benefits such as record updating, long term equipment monitoring, superior forecasting of raw materials, and during an emergency, the rapid dissemination of instructions.

The New Mobility

The definition of a “mobile solution” has evolved. Phase one, wireless e-mail and Internet access, enabled employees to communicate with co-workers and access information remotely from their cell phones. Phase two was the creation of industry-specific applications, such as those designed for utilities. The third phase saw the improvement in the actual mobile device, as witnessed by today's handheld or “pistol grip” mobile units that are designed for field work, working consistently without losing connectivity or draining battery power too quickly. And today's devices come with a “whatever you choose” selection of options: GPS information, bar coding, voice applications, signature capture, imaging, printing and pairing with calibration tools to name just a few.

The most recent phase delivered vast improvements in mobile application security. This changed the whole paradigm for how mobile technology can be used. Companies now trust the technology with information that flows not just back from the mobile device, but out of the enterprise. Organizations are able to use mobile units to bring information into enterprise applications such as Enterprise Resource Planning (ERP), Enterprise Asset Management (EAM), Customer Information System (CIS) and Supply Chain Management (SCM). This advancement is particularly important to utilities, where rapid incorporation of information from the field allows companies to optimize power generation, transmission and distribution through improvements in planning, scheduling, inventory management, logistics and other processes.

Why Go Mobile?

Utilities know they need to increase productivity and find cost savings, but they may be unclear about how mobile technology uncovers those benefits. At Capgemini, where we are completing live deployments in utilities, we can confidently say that a mobile solution adds value in virtually all parts of a utilities provider's value chain.

Two key capabilities offered by going mobile stand out above the rest.

Mobile solutions allow repetitive, time consuming activities to be done faster and accurately.

The AMI Case Study began with an existing process to replace meters, which was cumbersome and error prone. Back office clerks generated work orders, and field staff visited locations carrying printed installation orders on which they hand wrote their reports. Back at the office, clerks once more copied the data into the customer service system. Often, they couldn't read the handwriting and stopped to verify an address or locate missing information.

Equipping our client's mobile field force with mobile PDAs, with a custom built Work Management application, is like giving each member of the team a small computer to carry on their belts. The device provides a paperless solution that reduces installation times by allowing the mobile field force to download/upload their work orders by batch from the office or field each day or as required. Whether they are repairing, inspecting, installing or reading a meter, most of the information already is recorded on the device. If the installer makes an error entering data, the device corrects mistakes on-site, such as address inconsistencies or missing data. New information is recorded in real time in the customer service system, which streamlines the process for verifying installation or dealing with customer inquiries.

Mobile technology facilitates two-way exchange of information.

Consider the technician on the job in a northern community, miles from the main office. He needs to review past repairs on equipment that is malfunctioning, plus check the status of parts in inventory. By being able to quickly review asset conditions and historical repair data with confidence that it is updated, accurate information, he is able to make a decision in the field and then clear his decision with his manager hundreds of miles away that afternoon.

The ability of today's mobile devices to flow information into an organization's data banks and enterprise applications is especially beneficial to electrical companies. Data from the utility either resides outside of the enterprise (meter readings, asset condition, etc.) or is needed but otherwise inaccessible in the field.

In the AMI Case Study, the mobile solution did far more than just convert traditional meters to smart meters. The mobile solution was designed so that workers replacing old meters were able to electronically gather other important data such as meter numbers, meter reads, GPS coordinates, and customer premise details. This information is critical in the next phase of the project's implementation because it provides an interface for a paperless meter decommissioning process. It will allow for the recycling of conventional meters and a method of cost recovery.

Mobile Benefits Beyond Cost Savings and Productivity

Mobile technology creates a wealth of direct and indirect cost benefits. In addition to increased productivity and reduced costs related to streamlined operations and administration, labor, scheduling and inventory handling, mobile technology can:

- Improve visibility into work status
- Enhance safety and security
- Reduce compliance and reduce regulatory fines
- Increase responsiveness particularly during an incident like a power outage

As a result, employee and customer satisfaction increases dramatically. Utilities also report that the overall life of their assets is extended because engineers and technicians now have the time to do preventative maintenance. Easy access to historical records improves first time fix rates. Finally, extending core back end systems to mobile devices helps companies get the most out of their investment in these applications. Mobile solutions that integrate into existing enterprise systems means that sophisticated systems, like project management and GIS, are now extended to as many employees as possible.

Selecting the Right Mobile Solution: Leading Practices

Suppose it is known which areas of the business need to be mobilized and a strong business case for mobile deployment has been presented. How does one select the right solution?

Usability

No matter how brilliant the underlying technology or tangible the business benefits, will the mobile solution be easy to use, durable and dependable? Such features greatly reduce frustration for the front line users of the mobile hardware. When equipping the mobile field force for smart meter installation, Capgemini helped the client select durable mobile devices that could withstand field conditions of weather and location, with battery life that ensured usage over a long period without interruption.

It is important to also look for intuitive workflow that reflects the way workers actually perform tasks. Inquire about solutions that don't always depend exclusively on connectivity. "Thick" client based

applications, which store pertinent data and logic on the device so it can be used even when connectivity is not available, offer a great advantage to employees in the field.

Solution Architecture and Integration

Mobile solutions are generally geared toward getting data in or out of back end systems and integrating it with exchange information. The best mobile solutions are able to integrate seamlessly into multiple systems immediately in order to provide employees with all of the information they need as a part of a single application, and to allow workers to simultaneously update several systems based on information captured in the field.

Technology Capabilities

What depth of functionality and technology capability does a solution require? More is not always better. Over-engineering a mobile application may diminish performance and usability, and can make the mobile device difficult and expensive to maintain. It is, however, important that a mobile vendor addresses the following areas to ensure that a solution has the flexibility to meet long term needs:

- Does the mobile solution support a broad range of devices?
- Does it provide integration with other mobile applications?
- Where and when do employees need wireless connectivity, and how will this be met?
- Is the vendor able to easily - integrate new technology and additional peripherals?
- What security measures are available at what levels, and can these be adjusted over time?

Flexibility and Future Upgrades

It is critical to understand how a vendor develops and upgrades its software. Find out how and where changes and updates are made, and if

the vendor's development framework allows for inexpensive custom applications or modules in the future.

Long Term Mobility

Finally, consider the long term mobility strategy. Does it include deploying a single application or potentially mobilizing several areas of the business? Evaluate vendors on their ability to provide ready-to-deploy applications for multiple areas in the company's value chain. Such solutions dramatically reduce project times and save companies significant resources in application development, integration and customization.

In Summary

Companies in the utility industry are quickly adopting mobile technology to drive efficiencies. Whether your company owns several steps of this process or concentrates on a single area, mobile solutions present countless opportunities to improve employee workflow, maximize the quality of data in back end systems and cut paperwork from everyday processes.

To fully achieve these benefits, ensure that you select mobile tools that are easy to use, versatile, durable and scalable. Understand that the solution will change over time, both in size and in scope, and look for a solution that will accommodate this. Above all, think strategically about mobile as a part of the overall IT infrastructure, security profile and back end system environment.

Finally, seek advice from mobile specialists and companies that have deployed multiple solutions similar to yours at companies like yours.

With years of global experience and unmatched execution expertise serving hundreds of customers, Capgemini helps organizations with mobile workforces who must streamline workflow and improve productivity. Capgemini delivers quick ROI by delivering rapidly deployable mobile solutions built on a configurable mobile agency platform.

Capgemini SMART MCA Suite includes multiple tools for the fastest path to mobilize enterprise systems. Unlike other mobile solutions,

Capgemini simplifies enterprise wide deployments with a leading strategic architecture for one or more mobile applications while you concentrate on business processes. Capgemini also sets the standard for adapting to rapid change.

Smart Energy Services—Experience Reduces Risk

Capgemini's Smart Energy Services (SES) provides the full spectrum of smart metering, smart grid, smart home and smart analytics solutions through leveraging best practices developed over the last 10 years working alongside the world's leading utilities. Our team has extensive utilities industry experience with an unequalled track record for successful innovation and delivery. We are helping over 43 million utility customers by delivering sustainable energy efficiency and environmental solutions—transforming utility operations and the customer experience. Our commitment is strong with more than 8,400 professionals dedicated to the utility sector. More information is available at www.capgemini.com/smartenergy



About Capgemini

With around 120,000 people in 40 countries, Capgemini is one of the world's foremost providers of consulting, technology and outsourcing services. The Group reported 2011 global revenues of EUR 9.7 billion. Together with its clients, Capgemini creates and delivers business and technology solutions that fit their needs and drive the results they want. A deeply multicultural organization, Capgemini has developed its own way of working, the Collaborative Business Experience™, and draws on Rightshore®, its worldwide delivery model. Rightshore® is a trademark belonging to Capgemini

With EUR 670 million revenue in 2011 and 8,400 dedicated consultants engaged in Utilities projects across Europe, North & South America and Asia Pacific, Capgemini's Global Utilities Sector serves the business consulting and information technology needs of many of the world's largest players of this industry.

More information is available at www.capgemini.com/energy

Gord Reynolds
Smart Grid Operational Services Leader
gord.reynolds@capgemini.com
+1 416-732-2200

Alon Gat
Utility Industry Specialist / AOS
alon.gat@capgemini.com
+1 416-930-7405