

# *A winning field mobility deployment approach*

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## **At a glance**

*How utilities can deliver field mobility that integrates operations, drives efficiencies, and enhances user experience*

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## Introduction

*Utilities lag other industries when it comes to field operations technologies. Many still employ distinctly last-century work processes and technologies. The reason? Diverse operating conditions and enduring cultural circumstances often inhibit change.*

**Consider the following:**

Transmission and distribution (T&D) often spans vast geographic expanses served by a dispersed field operation workforce, equipped with inconsistent and sometimes manual work processes and tools. As a result, field data availability, quality, and timeliness are compromised. And transferring data to the central office, where clerks enter the information, is a time-consuming process that could take weeks. Last but not least, the lack of visibility into remote operations and conditions has meant that central offices cannot effectively schedule remote work crews.

**Mobility will resolve many of these complications.**

We believe that mobile technology will fundamentally alter the process of how work gets done, from the job site to the back office. An effective mobile solution can create an integrated flow of data that enables dynamic job dispatch and routing, automated vehicle location, electronic transmission of work packages and forms, live remote mapping, and real-time access to asset and worker information.

Early adopters of mobility have already reaped game-changing benefits. Based on our observations, utilities that have successfully deployed mobility solutions achieve productivity improvements of 20% to 30%.

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## The hurdles to deploying field mobility

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### *One thing is certain: Implementing a field mobility program will not be a trivial undertaking.*

Mobile is an extension of business processes and applications, and if the process is broken or the application is not integrated, mobile may amplify existing problems. Mobile is not a silver bullet; rather, it is an enabler. If, for instance, a utility has not established effective business rules for its mobile workforce-optimization technology based on business processes, resource types, work types, and design of its dispatch center operations, a mobile program may magnify existing inefficiencies.

Further complicating matters: Gas and electric utilities typically operate with many different types of work and disparate workforces. It is not uncommon, for instance, for T&D operations to comprise hundreds of work types spanning a vast array of operations that includes maintenance and construction, restoration, patrol and inspect, and customer-driven work, to name a few. Each function has some unique requirements—and business-unit leaders with very strong opinions about whose needs should take priority. Without control and architecture, the processes, devices, and applications may proliferate, leading to an increase in complexity and costs.

And then there's the issue of people. Mobility is a very broad initiative that can produce sweeping behavioral and cultural transformations across the corporate ecosystem. For instance, many field workers will require basic computer training before they can use mobile devices, and they may resist new technologies and electronic processes. Mobile also may bring changes to back-office supervisors and clerks, who may be accustomed to paper-based job processes. And because mobile technologies can enable utilities to electronically track field workers, it may change how employees are managed. Supervisors can electronically and in real time map the location and activities of field workers, which could be perceived as a privacy concern if not managed properly.

Another unique hurdle is that operations and maintenance (O&M) support differs from that of other technologies because the life cycle of mobile devices is shorter while the need for training and support is greater. In some utilities, technology is often viewed as a threat to existing work procedures among field workers, who may have performed their jobs the same way for decades. If a mobile-workforce

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## The five essential components of field mobility

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solution and O&M support are not carefully planned and designed, the deployment may fail. That can leave a lasting negative impact on end-user adoption, and future efforts to deploy technologies (mobile or other) to those field workers may become much more difficult.

Governance of change is never easy for companies moving from paper to electronic processes. This is particularly

true of mobile initiatives because they sit at the crossroads of business, traditional IT, wireless communications, and consumer devices. This confluence creates an enormously complicated stakeholder environment for program governance. The budget, timeline, and scope of a mobile program could easily spin out of control if an effective governance mechanism is not in place to steer the program in the right direction.

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## The five essential components of field mobility

A successful implementation of a mobile workforce solution will require a proven framework that enables leaders of gas and electric utilities to surmount the inherent challenges that impede mobile objectives and benefits.

PwC believes that an integrated, user-centric deployment approach presents the best method for success. Our approach comprises five essential elements (Figure 1).

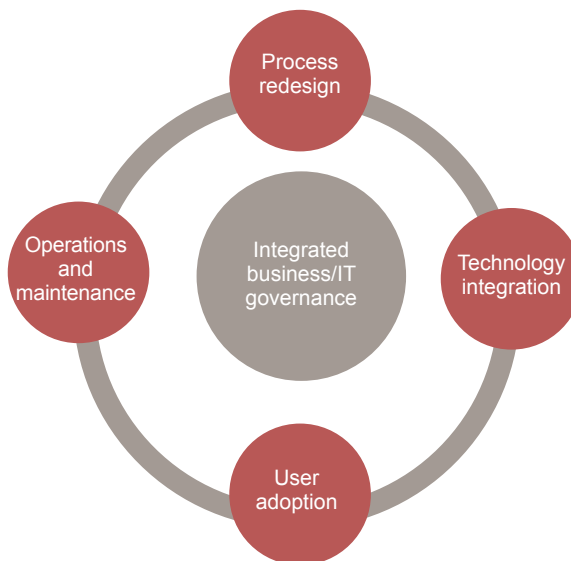


Figure 1: Five key elements to an integrated deployment

**Process redesign:** For utilities, change may not be easy. And there's no question that adoption of mobile devices in the field may disrupt work patterns—and impact roles and responsibilities across divisions and across the enterprise.

It will be essential to ensure that comprehensive process changes are considered prior to launch, including process handoff, data flow, metrics, roles and responsibilities, and accountabilities. If these changes are not identified, agreed upon, and incorporated into the solution design, communications, and training, deployment will likely stumble and the benefits of mobility may be elusive.

Process change should be managed carefully in order to not overload end users. For large-scale deployments, phasing in process change is a must. Depending upon size and complexity, utilities should consider phasing in by business unit, job classification, work type, solution functionality, or physical location. For example, some utilities ease workers into mobile by starting with only timekeeping. Others begin with short cycle work and then move

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to long cycle. Chances that the process will “stick” can be increased through comprehensive user testing, piloting, business validation, and training efforts, all done before full deployment begins.

**Technology integration:** Thanks to the consumerization of technology, some field workers expect their work mobile devices to be as easy to use as consumer gadgets. Yet the integration of devices, applications, communications, and systems behind the seemingly simple and intuitive touch screen presents a huge challenge for utilities. Simply mobilizing the workflows, digitizing data, and putting devices in the users’ hands will accomplish very little if the underlying systems, data, and transaction processes are cumbersome, convoluted or duplicative. Existing deficiencies in planning, work management, and data integrity can be magnified when mobile solutions are integrated with those IT systems.

Consequently, a meticulously designed and comprehensive technology integration architecture should be in place before deploying a mobile initiative. The integration architecture should consider the following eight “layers”: user groups, applications, application use scenario and environment, data (including availability, accessibility, and accuracy), devices, communications networks, service delivery enablers (connectivity management), and integration of core host systems (such as work management and customer information systems). Missing any of these elements during the integration architecture design may lead to unpleasant surprises and costly rework down the road.

**User adoption:** The success of a mobile workforce solution ultimately hinges upon widespread user acceptance and adoption of the solution. However, gas and electric utilities have traditionally employed field workers who may have little experience with basic computers, let alone sophisticated mobile tablets.

To overcome both the real and perceived skill gaps, consider a three-pronged approach: Design a simple and intuitive user interface to the application and device, foster an ownership mentality among users, and implement a “high-touch” user-support model (pre- and post-deployment). To increase the likelihood of user acceptance, involve users at every major phase of the project, including process design, proof of concept, user acceptance testing, pilot testing, and phased deployment. Selection of the users involved is paramount to success. We find that including a small number of key influencers in the design, testing, and pilot activities will foster an ownership mentality that can yield huge dividends as these workers become advocates for change among their peers.

Training design plays a key role in providing a high-touch user-support model. A pre-training survey can be used to gauge user competency and requirements to help determine training course content and delivery design (computer-based training or instructor-led training, for instance). It is also vital to survey users post-training to gauge level of learning, address any learning gaps, and improve the training design. Finally, providing “warm” on-the-job training (such as a hotline and expert user

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groups) is crucial during the initial phases of deployment to continue adoption by end users.

### **Operations and maintenance**

**(O&M):** We have seen that some utilities regard O&M for mobile as a traditional back office IT initiative. That's a trap. Combined, a higher failure rate of mobile devices—often due to harsh work environments—and a shorter device life cycle of hardware and apps call for comprehensive planning, infrastructure integration, and proactive end-user support.

Simply put, O&M should not be an afterthought for mobility projects. Mobility program management should carefully review existing IT support infrastructure, including software patch/release management, help desk, technical support, hardware and device installation, repair, and provisioning. Doing so will enable management to determine if the existing processes and service-delivery mechanisms should be augmented for the mobile program. From a support perspective, a typical multi-tier support model can be used to drive resolution of issues, but the routing and escalation mechanism—design of the interactive voice response system, for instance—should be efficient and effective. Some utilities, in fact, have established dedicated mobile-only support groups to manage all O&M activities. Regardless of the model, a highly responsive support structure should be in place to provide the necessary and timely hand-holding to users to help stabilize the deployment.

### **Integrated business and**

**IT governance:** Complex field mobility projects rely on rigorous

governance to drive process redesign, technology integration, user adoption, and O&M. Governance starts with the executive suite, cascades to the mobile program owners, and ultimately lands on project team leaders. Executives that sit on program steering committees should be accountable for strategic direction of the program, cross-business alignment, alignment within their business group, allocation of resources, quantification and attainment of benefits, and key decision-making. In our experience, a lack of alignment within the executive ranks or a disconnect between project teams and leaders on the direction or scope of projects often create the biggest issues. Robust governance can help mitigate these issues and keep projects on scope, on budget, and on time.

The secret sauce to making governance work is effective communications from the top down, with a strong feedback loop from project teams. This can be accomplished with a governance structure that has well-defined mechanisms to communicate progress, issues, and decisions; structured meeting cadences to better enable the flow of information; and a program management office that acts as “air traffic control” for all project activities, decisions, and communications. In addition, mobile programs are more likely to succeed when business and IT teams are integrated and jointly accountable for program results. For instance, one effective method that we have observed is structuring projects to have co-leads from the business and IT. This “two in a box” approach helps drive accountability and ensures that the working teams partner effectively.

## ***Now is the time to go mobile***

Despite significant obstacles to implementation, mobility represents the future for the utility industry. For those that have not yet implemented mobility, today's economic and regulatory constraints have created an environment in

which not considering a mobile program is no longer an option. Yet there's no denying that going mobile requires utilities to clear significant hurdles in the realms of people, process, technology and governance. However, benefits and rewards can abound if utilities are able to surmount those hurdles. For

those who have successfully traveled down this path, mobile solutions have enabled impressive operational improvements—in efficiency, safety, reliability, and ultimately customer satisfaction. For those still contemplating mobile, the time to act is now.

## ***Delivering mobility success in the field***

An integrated deployment strategy is essential to the success of every mobile initiative. Without it, project failure becomes an unquestionable risk.

Consider, for instance, the recent experience of a top US electric utility. The utility had attempted to deploy a mobile technology solution for several thousand T&D field workers. The initiative aimed to improve reliability, operational efficiencies, and worker safety, yet it gained more attention for a number of setbacks. The root cause was a lack of collaboration and cooperation among business, project management, and IT. This lack of alignment resulted in deployments that did not meet business needs and—more importantly—were not accepted by field workers.

To address the root cause, the utility engaged PwC to help define and implement an integrated deployment approach. PwC worked with key stakeholders from business, IT, and project management to facilitate collaboration and instill a culture of teamwork. Next, PwC helped define the processes, organizational structure, stakeholder-engagement needs, and training and communications plans for the mobile program.

Due to previous failures, user acceptance was paramount—but

also more challenging. The utility's integrated deployment plan included change-management strategies to address the profound behavioral and cultural change that a mobile program can bring to a low-tech workforce. Our change-management specialists guided the utility in implementing an effective program for user acceptance training, feedback, and support.

With PwC's assistance, the utility successfully deployed mobile solutions to thousands of field users, including troublemen, meter technicians, field service reps, vegetation-management contractors, and substation maintenance crews. These solutions spanned mobile/dispatch applications, workforce optimization, SAP work management, mobile mapping, and security authentication, to name a few. In addition, collaboration and partnership between business, IT and project management has significantly increased, enabling better design and development of existing and future solutions. The initial program has enabled the electric utility to reduce clerical support by approximately 15% and decrease time for key field work types by 5% to 7%, resulting in savings of several million dollars per year. Based on this success, the utility plans to roll out the mobile program to an additional several thousand field workers—and reap additional savings.

***For a deeper discussion on deploying field mobility, please contact:***

**Branton M. Cole**  
Manager  
720 350 0080  
branton.m.cole@us.pwc.com

**K.P. Reddy**  
Director  
678 419 3225  
k.p.reddy@us.pwc.com

**Chester C. Lee**  
Director  
703 731 3551  
chester.c.lee@us.pwc.com

**Jian Wei**  
Principal  
415 498 5270  
jian.wei@us.pwc.com

***www.pwc.com***

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