DECEMBER 2012

WHITE PAPER

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Mobile & Wireless Practice

By: David Krebs – *Vice President*

Mobility Solutions for Utilities: Satisfying the Customer Behind the Meter

VDC research

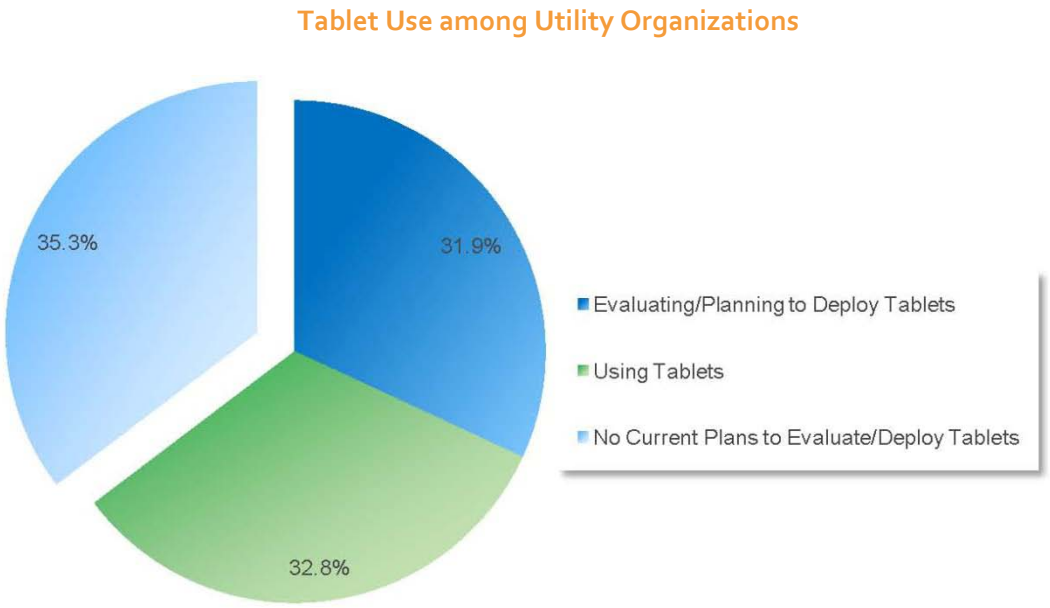
Introduction

Leveraging mobile solutions for asset and workforce management is a hot topic for utilities these days. As both the workforce and utility infrastructures age, many utilities are considering wireless technologies to help manage information, assets and workers. Research has confirmed a strong correlation between a highly productive mobile workforce and ensuring utility networks deliver continuous service and meet customer service standards. When outages occur, speed of response and public safety are paramount. Connecting mobile workers with the information and human resources they require delivers many strategic benefits to utilities including:

- Reducing operating costs while improving asset life and customer satisfaction
- Increasing on-time responses, wrench time, and job completions
- Enabling seamless, real time and interoperable communications with field workers, centralized support staff, utility management and first responders in emergency situations
- Reducing travel distance, vehicle emissions, and missed appointments
- Improving productivity and decreasing crew hours and overhead
- Incorporating training, work administration, and performance monitoring
- Improving collaboration, enhancing knowledge transfer and addressing the challenge of an aging workforce
- Automating the work order process to help reduce operating costs

A variety of mobile form factors – from smartphones to notebooks mounted in vehicles – are being used to support field workers in the utility sector. While no mobile device exists that meets the needs of all mobile workers in utilities, tablets represent an increasingly viable choice in that they provide a strong balance of a highly portable device with sufficient display real estate to support more graphics rich applications common in the utilities sector. In fact, according to VDC's research, over six in ten utility organizations are either currently using tablet PCs or are evaluating tablets for use among their field workers.

The utility sector is facing many challenges and opportunities over the next decade – from customer service improvements and enabling a more connected, agile and responsive field workforce to addressing the aging workforce prevalent in the utilities sector. Core to many of these initiatives and achieving new levels of service and field worker productivity is ensuring seamless access to critical asset and customer data.



Utilities' Aging Workforce

Today, utilities face the imminent retirement of many of their most experienced workers, hired from the population born between 1945 and 1960. Maintaining utility reliability, efficiency and safety during this period of change is particularly challenging for those managing field service technicians, whose skills and depth of experience are difficult to duplicate among new hires. Leveraging mobile workforce solutions and mobile devices such as tablets will be critical in managing this transition and ensuring that new workers receive the appropriate training and access to critical processes and documentation. To ease this transition, today's mobile workforce applications provide:

- Better and more accessible asset records that speed maintenance, repair, and complete documentation.
- Scheduling and assignment functions that dramatically increase field crew productivity.
- Integration with seamless video and image management solutions to provide remote support capabilities.
- Thorough job documentation, monitoring, and "expert advice" functions that help new workers complete complex tasks quickly while maintaining safety.
- Oversight and reporting functions that permit field supervisors to handle more projects and more workers while also enhancing their role in fieldwork consulting and planning.
- Integration to other utility applications that foster efficient cross-departmental business processes.
- Advanced functions that anticipate workforce requirements surrounding Smart Grid implementations and operations—configuration management; firmware version control; and compatibility, obsolescence, and security parameters.

Next Generation Asset Analytics

Advanced analytics draw on powerful analysis platforms to present data and complex interrelationships in a manner designed for the business and operational needs of different types of utility employees. From the field, to the asset manager, to the board room, asset analytics provide critical real time intelligence to ensure that appropriate decisions can be made in real time. Today's mobile versions of asset analytics provide utility field crews with a much more thorough understanding of an asset's inspection and maintenance history. At the same time, mobile analytics help field crews better understand the importance of their role and the accuracy of data they are capturing to the functions and decisions across their utility's energy value chain.

Real-Time Scheduling

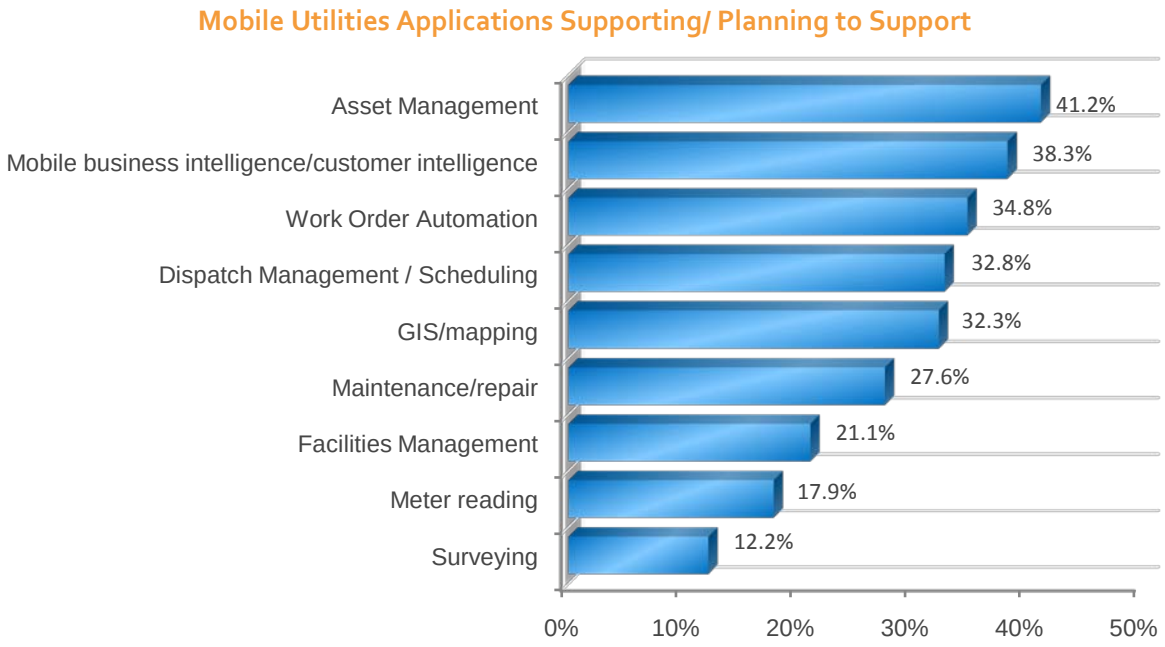
A critical function of any service based industry is to better manage schedule expectations. Customer service in the utility sector has been lagging and much of this has to do with how customers engage with their local utilities. Especially during emergency or non-routine scenarios, keeping customers apprised of scheduling expectations is critical. While many experienced field technicians generally know their territory and the likely duration of different tasks, the same does not hold for less experienced workers and frequently, schedules developed by less experienced workers, can result in productivity decreases. Mobile workforce applications that include real-time scheduling prevent this productivity drop-off. As the crew finishes its emergency tasks, real-time schedulers immediately produce new schedules that start from the current location and follow utility-established rules for task priority and drive time.

Job Training and Monitoring

Experienced workers carry in their heads the correct safety techniques and job structure. Mobile workforce software incorporates that knowledge and makes it accessible via tools like checklists and context sensitive help. It ensures that less experienced crews meet utilities' safety and compliance guidelines. As a result, mobile workforce management software can substitute for expert supervision. It helps standardize tasks, and it guides employees through each step. It thus reinforces previous training; decreasing the time it takes newer employees to become productive. And job monitoring can alert remote supervisors when tasks exceed standard time requirements, permitting them to reach out to a technician struggling with an unfamiliar task.

Integration between Mobile Workforce and Asset Management Solutions

Experienced workers know the peculiarities of field assets. They can make workaround repairs even when someone forgot to put the "right" parts and equipment into the truck. Successful innovation is one of the most valuable skills you lose when workers retire. However, integrating mobile workforce and asset management applications can fill the gap. Application integration ensures that field crews arrive at a site with the right parts. It provides crews with maintenance and repair histories that help crews respond to specific repair challenges. Integration also speeds replacement of depleted parts inventories by notifying the asset management system as soon as the crew reports parts used. Moreover, by integrating functions a more proactive approach can be taken by utilities organizations to drive increased cross and up-selling opportunities.



The Tablet as a Key Mobile Platform in Utilities

When it comes to highly mobile workers who interface directly with customers and prospects, the tablet appears to represent the ideal form factor through which rich customer engagement experiences can be delivered. However, while tablets have been used by utility organizations for much of the past decade it is only recently that adoption is reaching scale. The advances in tablet functionality, user friendliness and intuitiveness, in addition to overall performance are ushering in a new era of mobile computing. This is evident in the level of investment and evaluation of tablets among insurance organizations. According to research conducted by VDC, just over six in ten utility organizations are currently using or planning to deploy, or are evaluating tablets for use by their mobile workers.

Key Tablet Form Factor and Functionality Requirements

While much of the attention directed towards tablets has been for consumer oriented devices, consumer devices have limitations when it comes to enterprise-use cases. While consumer devices have positively impacted the tablet opportunity throughout all enterprise organizations and set new standards for design, user interface and overall intuitiveness, they are frequently ineffective for core enterprise mobile applications. The challenges end users express with consumer tablets in the enterprise spans everything from core device functionality to management of these devices by enterprise IT and their security limitations. In addition, the ability to seamlessly interact with backend systems and integrate with legacy backend applications including support for capabilities such as rapid updating are additional ‘consumer device’ limitations.

For field based workers such as utilities service technicians, critical requirements include:

- **Durable, yet lightweight design.** Failure rates of mobile devices are a critical concern as they can substantially disrupt workflows and have the potential to deter from the service delivered by technicians. Devices designed to withstand inclement conditions and the potential for occasional drops are ideal. Another key requirement is the ability to interface with the display with wet hands or in wet conditions.
- **Display daylight visibility.** While consumer device displays are visually appealing, in sunlight or ambient light conditions they wash out. Having a display that can be easily read in these conditions is a key benefit.
- **Application extensibility**. Many back-end utility applications are designed to operate in a Windows environment. Leveraging these platform investments and ensuring forward compatibility is critical for many utility organizations.
- **Input/output configuration options.** Mobile workforce management applications require a variety of input/output configuration options ranging from signature capture, image and video capture, multi-touch (five finger) interface and magnetic stripe readers for payment among others.
- **Embedded wireless functionality.** While many utility applications can operate in a disconnected state, with more data moving to the cloud's seamless wireless network connection, carrier (3G/4G) or WiFi is critical.
- **Unobtrusive, yet robust security.** The balance between convenience and security is a delicate one. While insurance organizations have long been committed to protecting their customer data, security requirements are becoming even more stringent due to increased regulation, the volume of data being generated and several high profile security breaches. Insurance organizations need to look for effective ways to more seamlessly embed security into processes and data. For mobile devices this likely means both hardware-based encryption, trusted boot functions, data-at-rest encryption, and remote lock and wipe capabilities. While security – especially for mobile insurance solutions – needs to be unobtrusive, sacrifices for the sake of ease of use cannot be made.

ABOUT VDC

Market Intelligence for Technology Executives. VDC Research Group (VDC) provides market research and advisory services to the world's top technology executives. Our clients rely on us to provide actionable insights to support their most important strategic decisions. The firm is organized around four practices, each with its own focused area of coverage including: automatic identification and data collection, embedded hardware, embedded software and enterprise mobility.

For more information about this research product, please contact:

VDC Research Group, Inc. | 679 Worcester Road | Suite 2 | Natick, MA 01760

Mike Collette – *VP, Sales & Enterprise Accounts*, **508.653.9000** x112, info@vdcresearch.com

David Krebs – *Vice President*
Eric Klein – *Senior Analyst*
Balca Korkut – *Analyst*
Britt Libby – *Analyst*