



Transcending Boundaries with Mobile Field Force Technology

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Transcending Boundaries with Mobile Field Force Technology

Field mobile devices are not new to the Energy, Natural Resources (NR) and Utility industries. These industries, with operations spread over vast geographies, have built sophisticated mobile systems to assist their field forces. Over the years, the devices have become extremely rugged so that they can operate in increasingly harsher and hazardous environments. They had a singular task – to send back-end data to the front-end user of the device. This largely meant transferring work-order related data – location of assets, work schedules, restoration and maintenance information, and so on. Today's mobile devices come packed with dozens of sophisticated geo-magnetic, ambient light, UV, temperature, induction and proximity sensors, barometers, scanners, cameras, audio recorders, accelerometers, gyroscopes, GPS, finger print readers and touch-sensitive screens. These sensors and monitors are reinventing retail, communication, healthcare, entertainment, education and banking. However, discussions of their impact on Energy, NR and Utilities have remained subdued. This is surprising given that these industries have not been sluggish at

assimilating and adopting technology in other areas. If anything, they have been steadily introducing 'intelligence' into their operations, networks and supply chains to become 'smarter' and improve efficiencies. Mobile technologies as such can play a role in upgrading field services for these industries and create a disruptive force.

Mobility has seen success in the consumer segment. Employees are busy using mobile devices in their personal lives for shopping, entertainment, travel, banking and education. They are now ready to use it in their workplace as well. How can mobile devices bring about a revolution in field work solutions for the Energy, NR and Utility industry?

Today's mobile devices, with their sensors and monitors, can send accurate data back from engineers in the field, often in real time. This can help address compliance with regulations, ensure accurate field audits, drive efficiency and productivity and dramatically boost customer satisfaction levels.

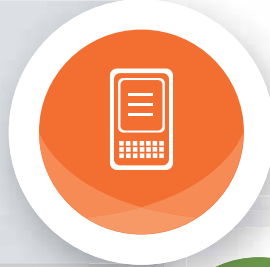
These are predominant reasons for mobile technologies to become a major investment area for businesses in these industries.

Investment Priority: New Reasons to Back Mobile Solutions

There are several drivers for the mobile enablement of field services in the Energy, NR and Utility industries. These include:

Emergency of a mobile-savvy generation

This generation wants, and is comfortable working with such devices as reflected in the BYOD trend.



Access to critical information at the point of engagement, enabling accurate and real-time decision making

This can be related to asset conditions and environmental factors that influence service availability and quality.



Ability to increase and expand collaboration

This is between the growing number of specialist field personnel, back end teams, partners, suppliers, external consultants and remote domain experts.



Enhanced productivity and customer satisfaction levels

By ensuring that interaction data captured at point of engagement triggers the right resources at the back end to improve operational efficiency; this is a key element in positively impacting customer satisfaction levels.



Historically, investment in the mobile enablement of field services has been narrow and restricted to situations where they were unavoidable. A key reason for the reluctance to continue investments has been the nature of the technology deployed by these devices. Most of the technology has been proprietary. The devices themselves have been useful, but have had limited functionality and could not be easily re-purposed. Many of them require training, long-term management and maintenance investments. And from the perspective of the current pace of technological change, they belong to a generation of hardware that has a fearfully short and unviable lifecycle.

The evolution of business and operating models has also curbed investment in these devices. With specialist partners carrying out work rather than employees, the expectation has been that partners will bring their own devices.

But the current state of mobile technology changes all this. Shrinking form factors; the convenience of wearable technology; upgradable, multi-functional and adaptive platforms and applications; intuitive interfaces; pervasive connectivity and reliable networks; automated configuration and management of the devices coupled with lowered costs are ensuring that new investments are made in the mobile enablement of field services and fleet management (see How Transfield Enabled the Field Force).

How Transfield Benefited from a Mobile Field Force Solution


The Australian asset management, operations and maintenance company deployed automated scheduling and dispatch solutions integrating to SAP. The solution provided the field force with real-time access to back-office asset information and intelligence, allowing workers to make intelligent decisions. The key benefits were:




Change in Processes: The Interaction Data Captured at Point of Engagement Drives the Back End and Vice Versa

With this, human interface of interacting with data has simplified. For example, a utility engineer can resolve a customer problem on the site and get the customer's signature on the work completion form on a touch screen. When this data is sent to the back end, it can immediately trigger a number of sub processes related to updating time sheets for the engineer; checking on compliance criteria, generating bills and acknowledgments, scheduling the next task for the engineer, providing details of the next task, delivering C-SAT questionnaires to the customer and alerting the next customer of the availability of the engineer.


Operationally, this means:

 **Improved work order management**

Automated dispatch of engineers based on availability, proximity, skills.

 **Improved fleet management**


Real savings on fleet management by doing it first-time-right, optimizing operations through a real-time view of fleet condition, location and scheduled work.

 **Improved inventory management**

Acquire real-time in-stock/ out-of-stock view, raise accurate and timely purchase orders, and reduce use of paper and labor.

 **Improved health, safety and environment management**

Ability to capture text, images and audio on site without cumbersome equipment and storage limitations for audits and compliance activity.

 **Improved asset monitoring and inspection**

Use of bar codes, RFID, NFC reduce errors and time taken to complete jobs; ability to provide augmented reality assistance on site via wearable equipment (such as Google glass) that overlays virtual information on real images.

Back-end processes must be able to understand and analyze data in various forms and often in real time to determine the right decisions. This implies stronger data management capabilities combined with analytical engines and industry-specific predictive algorithms.

Security becomes a major concern as back-end data is exposed across a number of user layers – which may or may not include external agencies, consultants and partners. In addition, if the mobile device is misplaced by the user (or the device is stolen), it could result in compromising valuable enterprise data and IP. Security therefore needs to be addressed at several levels. The first is at the user level (with a focus on user authentication, network identity and roles-based access) and the second is at the device level (device encryption, remote device lock, data wipe). The third level at which security must be examined and strengthened, is how the devices communicate with the back end.

The Mobility Trend: When is a Good Time to Ride it?

Mobility has been identified by leading industry analysts as one of the Top 10 Technology Trends in 2014 for the Oil and Gas Industry, and Mobile and Location-Aware Technology has been identified as a Top 10 Technology Trend in 2014 for the Utility Industry. This trend will gain momentum through 2015 as devices become more sophisticated and cheaper along with exponential improvements in mobile networks. However, the biggest boost to field services will come from the fact that technologies such as Cloud, Big Data, Analytics and the Internet of Things multiply the outcome of the creative deployment of mobile technology. Businesses in the Energy, NR and Utility industries are actively adopting Cloud, Big Data, Analytics and Social to improve their operations, meet regulations, find new investors and win new markets. The mobile enablement of field services neatly segues into each one of these. Organizations that depend heavily on field services must get moving now in order to retain their competitive edge.

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31 March, 2014: Gartner, Top 10 Technology Trends Impacting the Oil and Gas Industry in 2014:

<https://www.gartner.com/doc/2695918/top--technology-trends-impacting>

20 March, 2014: Gartner, Top 10 Technology Trends Impacting the Utility Industry in 2014:

<https://www.gartner.com/doc/2687015/top--technology-trends-impacting>

About the Author



Purushottam Darshankar has over 18 years of software industry experience working on numerous large scale projects across geos and domains. He has a rich experience in implementing and supporting mobility solutions for enterprises in B2B, B2C and employee productivity areas across industry segments. Purushottam provides thought leadership and subject matter expertise for enterprise mobility and digital transformation engagements for Energy, Natural Resources, Oil & Gas, Utilities, Telecom, Manufacturing and Healthcare industries. He can be reached at purushottam.darshankar@wipro.com

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