Mobility in Field Services Management: Part One (of a Two-Part Series)

New mobile applications for field service management have enabled game-changing efficiencies for companies looking for new ways to simultaneously grow revenues, improve customer experience and reduce costs.

Executive Summary

Mobile innovation is expanding rapidly in areas ripe for big paybacks. The time has come for field services organizations to raise new questions, explore new possibilities and reexamine old problems from a new angle, by reaping the benefits from mobile-based solutions and gain market share through “service-led differentiation.” In fact, mobility can solve some of the key strategic and tactical challenges that these organizations face today: making the most out of every contact with the customer, innovating and blocking the competition, identifying customer churn patterns, strengthening collaboration among field engineers, tackling long billing cycle times and improving workforce utilization.

This part of the paper looks at:

- Revolutionizing a field service organization through the three plays of mobility.

Part two of this paper will explore functional prioritization, implementation approaches and the need for an integrated hardware and software solution with accompanying mobility architecture that is aligned to the organization’s long-term strategy.

Field Services Management: An Overview

The ever-increasing pressure on efficiency and productivity to reduce costs has led to a shift in focus from Cap-Ex to Op-Ex. This in turn has led to increased budget allocation for maintaining capital equipment rather than replacing it. For example, in electrical and industrial machinery, services account for 30% to 40% of total cost of ownership, which has led to an increased share of manufacturing sector revenue and employment associated with services to as much as 55%. Besides, manufacturers are looking for ways to sell high-margin, value-added services in areas such as performance optimization and
both preventive and predictive maintenance. These business trends are key drivers prompting manufacturers to focus on growing services as an additional revenue stream.

For example, a manufacturer’s field services team could comprise engineers and analysts who ensure uptime and availability of the client’s equipment by offering various services. Many industrial manufacturers offer specialized services such as detailed analysis and reporting of equipment — i.e., life expectancy analysis, vibration analysis, energy consumption analysis — in addition to the standard servicing of the equipment. Regardless of whether this function is in-house or contractual, the field service function is a crucial aspect of the business influencing metrics associated with new customer acquisition and customer retention.

**Building a Case for Mobility in Field Services Management**

The ever-increasing pressure on operating margins and employee efficiency coupled with increasing global footprint makes mobility in today’s field service organization a critical, enabling solution. A field service organization may have a decentralized operating model, whereby each business unit and/or geographical region has its own systems and processes to serve customers. However, a shift to an integrated operating model with a centralized service information platform would facilitate process harmonization and collaboration and knowledge-sharing among technicians and test analysts across geographies.

This will support distinct differentiation and competitive advantage by building intellectual capital that the organization can then share.

---

**Field Service Management: A Functional Map**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Services</td>
<td>Service History</td>
<td>Asset Database</td>
<td>Inspection</td>
<td>Diagnosis &amp; Testing</td>
<td>Field Service Reports</td>
<td>Trend Graphs &amp; Derived Parameters</td>
<td></td>
</tr>
<tr>
<td>Collaboration</td>
<td>Blogs and Threads</td>
<td>Discussion Forums</td>
<td>Wiki Pages</td>
<td>Live Chat Support/ Chat Room</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logistics</td>
<td>Parts Inventory Visibility</td>
<td>Part Returns</td>
<td>Part Delivery Scheduling</td>
<td>Field Quote Generation</td>
<td>Real-Time Spare Part Booking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract &amp; Warranty</td>
<td></td>
<td>Service Level Agreements</td>
<td>Warranty Information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Billing &amp; Expense</td>
<td>Employee Expense Claims</td>
<td>Time Sheet Filling</td>
<td>Customer Invoicing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automated Sales Opportunities</td>
<td>Up Selling</td>
<td>Cross Selling</td>
<td>Renewal of AMC</td>
<td>Parts Catalogue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KPIs &amp; Dashboards</td>
<td>Productivity &amp; Utilization</td>
<td>Customer Retention</td>
<td>Sales</td>
<td>Analytics &amp; Dashboards</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote Monitoring</td>
<td>Monitoring of Operating Parameters</td>
<td>Data and Notifications for Abnormal Trends</td>
<td>Corresponding Tests and Services</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Field service business is well-suited for mobility, as it includes complex processes with multiple interactions, distributed activities and access to diverse information.*
across the enterprise in real time. In such an integrated model, mobility would improve key business KPIs such as:

- Field engineer utilization.
- Field engineer productivity.
- Order-to-cash cycle.
- Customer satisfaction.
- Cross-sell/up-sell services - service revenue.
- Service contract renewal.

Leading analysts consider mobility to be a key tool in the pursuit of field service excellence that can help in gaining competitive advantage. The key findings associated with the best-in-class organizations studied in this report are:

- 49% have mobile tools in which field workers can access schedules, work orders, resolution information and parts information.

### Challenges in Field Services and Potential Mobile Solutions

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Business Impact</th>
<th>Potential Mobility Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Unacceptable repair times.</td>
<td>· Brand erosion.</td>
<td>· On-site access to knowledge portal and past resolutions of similar issues.</td>
</tr>
<tr>
<td>· Missing SLA commitments.</td>
<td>· Lost sales.</td>
<td>· Electronic download and upload of forms and data.</td>
</tr>
<tr>
<td>· Manual data entry errors.</td>
<td></td>
<td>· Dynamic scheduling.</td>
</tr>
<tr>
<td>· Lack of visibility to spare parts and status of service call.</td>
<td>· Lack of visibility.</td>
<td>· Access to skill roster.</td>
</tr>
<tr>
<td>· Lack of visibility to field service engineer’s location.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Low technician productivity.</td>
<td>· Loss of business opportunity.</td>
<td>· Integration of service functions (field, parts, contact center).</td>
</tr>
<tr>
<td>· Inaccurate capture of repair costs.</td>
<td></td>
<td>· Google Map integration/GPS coordinates.</td>
</tr>
<tr>
<td>· Inability to take advantage of potential sales: cross-selling/up-selling</td>
<td></td>
<td>· Service request status update and alerts.</td>
</tr>
<tr>
<td>· Expiring maintenance contract.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Long billing cycle times.</td>
<td>· Eroding profitability.</td>
<td>· Automated forms and scanning devices.</td>
</tr>
<tr>
<td>· High cost of holding parts inventory</td>
<td></td>
<td>· Automated capture of repair-related costs: spare part costs, time-sheets and compliance with SLAs.</td>
</tr>
<tr>
<td>· High cost of fuel and vehicle maintenance</td>
<td></td>
<td>· Automated suggestion of follow-up services and access to product/parts catalogue.</td>
</tr>
<tr>
<td>· High cost of determining accountability: tracking down paperwork.</td>
<td></td>
<td>· Access to relevant maintenance contract information.</td>
</tr>
<tr>
<td>· Resistance to adopt new technology.</td>
<td>· Field technician buy-in.</td>
<td></td>
</tr>
<tr>
<td>· Resistance to be monitored 24x7.</td>
<td></td>
<td>· Automated expense report filing: reduce expense claim cycle time.</td>
</tr>
<tr>
<td>· Outsourcing to third-party service providers.</td>
<td>· Inconsistent service experience.</td>
<td>· Designing role-based mobile apps.</td>
</tr>
<tr>
<td>· Contractual workforce.</td>
<td>· Knowledge management.</td>
<td>· Access to standard operating procedures and check sheets for diagnosis.</td>
</tr>
<tr>
<td>· Nonavailability of technician with right qualifications</td>
<td></td>
<td>· Collaboration with SMEs through online chat and discussion forums.</td>
</tr>
<tr>
<td>· High attrition rate and knowledge loss.</td>
<td></td>
<td>· Access to knowledge portal.</td>
</tr>
<tr>
<td>· Lack of performance visibility.</td>
<td>· Lack of senior executive support/</td>
<td></td>
</tr>
<tr>
<td>· Lack of visibility on impact of services on customer management.</td>
<td>sponsorship.</td>
<td>· Business intelligence on mobile devices (including customer-related metrics and impact of services on financial metrics).</td>
</tr>
</tbody>
</table>

Figure 2
- 82% first-time service ticket fix.
- 15% decrease in service cost.
- 76% workforce utilization.

**Challenges and Potential Solutions in Field Services**

A majority of field service engineers are on the move and have to spend considerable time searching for tools and information for resolving service requests. Without real-time access to the organization's network at the point of activity, field technicians have to resort to collecting and capturing the information manually and later reentering it into the application. This may lead to errors. It also reduces the speed at which information moves through the supply chain, causing delays in information availability that may be critical for problem-solving, repair and redeployment.

Also, many field service organizations face the challenge of ensuring consistent service quality from field service technicians hired on contract. Figure 2 (previous page) summarizes how mobility can address some of the specific challenges of today’s field service organizations.

**The Three Plays of Mobility in Field Services**

To maximize the value creation in field services and deliver world-class service levels, organizations should examine the way they execute business processes across the value chain of field services – from receiving the service request and dispatching a skilled service engineer, conducting niche engineering tests and analysis (if required), gaining visibility to spare parts inventory, invoicing and tracking of service orders to the ability of taking advantage of cross-selling/up-selling and contract renewal opportunities. The ability to achieve business gains in these processes hinges upon three plays of mobility in field services (see Figure 3).

**Efficiency Play**

One of the primary objectives of enabling field engineers (or third-party agents) with mobile devices is to increase their efficiency and/ or productivity. The apps on mobile devices can enable key activities such as:

- Dynamic service ticket (work order) assignment, allocation and acceptance.
- Time sheet filing.
- Expense report creation and submission.
- Routing/navigation information.

As a result, instead of seeing mobile devices as a tool for personnel tracking and performance monitoring, field engineers can use mobility to generate substantial value by improving both service and dispatch cycle times. These make business processes more efficient, paperless and user-friendly – leading to improved user adoption.

**Efficiency: Case in Point**

One of our North America-based clients, a global oil major engaged in exploration, refining and marketing of oil and related products, was facing efficiency challenges in its service request processes.

**Mobility Plays in Field Services**

![Figure 3](image-url)
• Creation, approval, acceptance and completion of work requests (maintenance, etc.) was done using Microsoft Excel.

• Standardization was minimal in work request creation and data capturing.

• Report generation was a difficult task.

The above challenges were addressed by enabling electronic release application for the creation and review of work requests using a handheld device. This enabled dynamic allocation, acceptance and completion notification of work requests. Our client also reduced the order-to-cash cycle time by enabling service engineers to create service reports at client locations and get the necessary approvals.

**Transformation Play**

A more strategic objective is using mobility for global, scalable performance improvements. Some of the key challenges, as faced by today’s field services organization impacting the overall health of business, are discussed below:

**Consistent service experience:** Increasing margin pressure coupled with stringent SLAs and increasing demand for value-added services is driving organizations to partner with third-party field services organizations or hire contract technicians. This makes providing a consistent service experience to the customer challenging, which in turn impacts the overall brand perception of an organization.

**First-time resolution rate:** To deliver a consistent service experience to a global customer base, global manufacturers are exploring the decentralized operating model of offering value-added services, which fails to realize the benefits of collaboration and knowledge-sharing. For example, if a problem occurs in one region, a field service engineer located elsewhere can look for a solution from a different geography and access the solution immediately, which would lead to an improved first-time resolution rate.

**Third-party warranty claim adjusters:** A third-party-based service model makes management of parts, contracts and warranty leakages/insurance claims challenging. Third-party personnel need access to the same set of information as would in-house service personnel for appraising and calculating entitlement and settling a claim. Without access to the correct information on the field - e.g., which parts are covered under warranty, for how long, etc. - giving away services for free will be a likely possibility. A mobile-based application enables:

• Automated data capturing and uploading of test forms.

• Automated workflows.

• Onsite service, repair, diagnostic testing and disposition.

• Access to service agreement and warranty details of the product.

• Onsite collaboration with SMEs.

These will reduce the impact of some of the aforementioned challenges through simple reengineering of key field-related business processes. Organizations are looking for these applications on rugged industrial-grade devices and smartphones/tablets having the following functions and features:

• Plug-and-play accessories.

• Barcode scanning and RFID-reading capabilities.

• Real-time chat capability.

• GPRS, Bluetooth/Wifi.

• Visual library; tagging pictures of the equipment to report and highlight problems.

**Transformation: A Case in Point**

• A global automotive major in the passenger car market has developed a point-of-service tool to aid technicians. The application, based on a rugged mobile device, connects wirelessly to the internal information library of the vehicle. This provides technicians access to online catalogs, repair manuals and both technical and reference libraries. The application connects to the vehicle, identifies it and retrieves diagnostic test codes, enabling consistent diagnosis and repair by independent dealers and service providers.
In another example, one of our clients who is a leader in facility maintenance in the U.S. has an operating model with a mix of internal technicians and third-party personnel. The challenge in this model was to execute a job with the best resource available and in a consistent manner. We developed a multi-device delivery platform for:

- Skill- and location-based service ticket allocation.
- Workflows for diagnosis and resolution.
- Report creation with the ability to share the problem on a common platform.

The solution also enabled the client to access data collected by the third-party personnel during problem resolution for immediate analysis.

Best Practices from Industry

- **QR codes and text-based service alerts:** Some of the best practices in the consumer goods industry can be applied in the industrial manufacturing sector as well. Reminder texts via cell phone when white goods are due for service and QR codes to fetch additional information about products are two examples. Similarly, B2B customers can get reminders and updates on various services relevant for their equipment. For equipment information, field service engineers can scan the QR codes using their mobile phones.

- **Process integration:** Some of the leading field services firms are integrating the field service management solution with their clients’ remote condition monitoring software, which leads to improved process integration. Services can be configured based on alerts, which leads to process automation and productivity improvements.

Disruptive Play: A Sense of Urgency

Field services firms have long been executing proactive customer experience and operational cost management. To maximize their market share, however, they also need to uncover the latent needs of their customers. This calls for an innovation platform leveraging both competitive intelligence acquired around competitors’ equipment and a firm’s expert knowledge scattered across the organization, around field services. Inability to capitalize on these limits the early-mover advantage of identifying and introducing new test and service offerings before the competition does. Challenges such as a failure to identify customer churn patterns, lost opportunities to cross-sell and up-sell services and long billing cycle times are impacting the revenue growth and profitability of field service organizations significantly. Industrial manufacturers could potentially address some of these challenges and gain non-linear growth by using the following levers:

- **Gaining competitive intelligence:** To increase market share, some industry players have begun to extend their service offerings to cover competitors’ equipment. This gives them an opportunity to gain competitive intelligence as well as differentiation by consolidating service providers and therefore blocking out competition. During the servicing of equipment, a field service engineer may come across information such as:

  - Quality information on service frequency, disruptions or failure rates.
  - Type of failures/issues in their own and in competitors’ equipment.
  - Design concepts/parameter settings.
  - Ease in reparability and maintainability.

A field service engineer equipped with a mobile device can help capture and store this information centrally in a structured manner. This information can be used as a learning tool, giving insight about competitors’ products with strengths and weaknesses vis-à-vis the company’s own products. This will support designing more robust products and targeted service offerings, thereby maximizing revenue potential, increasing customer retention and boosting prospective customers.

**Near field communication technology:** Near field communication (NFC) technology is on the rise in the mobile space, providing exciting new ways of doing business. Some of the avenues where a field service organization can leverage NFC to gain competitive advantage include:

- **Facilitating a knowledge-management-based approach:** A knowledge-based approach to capture and share issues, problems and solutions across a client’s BUs and regions would lead to synergies and operational efficiencies. Wikis, blogs, discussion forums and live chats are some of the tools that help in
building this knowledge-based platform. NFC-enabled mobile devices will facilitate this innovation platform by enabling instantaneous and seamless sharing of content with a simple tap between any two devices. In field services management, this technology can be leveraged for:

» Sharing content from media applications.
» Sharing a URL from the browser.
» Transferring documents and files.
» Sharing voice notes.
» Sharing contact information.
» Sending chat-room invitations.

• **Enhance customer experience:** In industries where physical assets are present, NFC smart tags can provide a brand new flow of specific information both for customers as well as for a field service engineer. An instant and seamless information flow on tap such as service history of the equipment, information around the annual maintenance contract, warranty coverage, creation of real-time service requests during site inspections and feedback mechanisms will not only result in quick turnaround, but enhance the customer experience as well.

Also, a field service engineer equipped with a mobile device and enabled with a standard test and service catalog, onsite inventory visibility, contract renewal and quote generation capabilities can go beyond the routine work of standard maintenance activity and become an agent for generating additional revenues for the organization. This will improve the conventional sales process by capitalizing on customer face time.

• **Reduce billing cycle time:** A printed invoice could include NFC technology that would allow customers to immediately pay securely with an NFC-enabled smartphone.

**Creating predictive analytics:** Predictive analytics can lead to a more proactive customer retention strategy. Business can now analyze a very large database of a customer’s service usage, service performance, spending and other behavior patterns for better customer segmentation and to detect churn patterns for preventive actions. It enables a range of advanced insightful information on key concern areas such as:

» Specific issues customers can have with equipment, and approximations of when these issues would surface.

» Percentage of first-time fixes - at equipment, issue and service-engineer levels.

» Optimum length of appointments to achieve first-time fixes - at equipment, issue and service-engineer levels.

» Customer satisfaction and loyalty performance at issue and service-engineer levels.

» Likelihood of service contract renewals.

A daily or weekly batch notification on predefined business rules and availability of this detailed information on executives’ mobile devices will facilitate timely and tailor-made service offerings.

**Looking Ahead**

Today’s field service organization strives to achieve high performance, increased customer satisfaction and revenue growth by transforming its field force capabilities while remaining cost-effective.

As discussed in this series, mobility is a key enabler in responding to these market pressures by bringing technician-focused tools to the field and revolutionizing the service business practices of the field service organization. However, merely investing in technology does not ensure improvements in key KPIs. To be successful with mobile deployments, organizations should:

» Select the right FSM solution.

» Adopt the right implementation approach.

Part two of our white paper will build on this foundation by outlining the functional and technical parameters for a field service organization to go mobile. Further, we will outline the implementation approach for developing an integrated solution that delivers a true competitive edge.
Footnotes
1 Manufacturing the future: The next era of global growth and innovation, McKinsey Global Institute, November 2012.

About the Authors
Amit Kumar Singh is a Senior Consultant with Cognizant Business Consulting and is a core team member of the Manufacturing and Logistics Practice. He has successfully executed a project advising the client on developing a “service information platform” facilitating collaboration, process harmonization and new services’ introduction for its field service organization. Amit has an M.B.A. from SP Jain Institute of Management and Research, Mumbai and a bachelor’s degree in mechanical engineering. He can be reached at Amitkumar.Singh@cognizant.com.

William (Bill) Cogdill is a Senior Director and Consulting Partner within Cognizant’s Manufacturing and Logistics Practice. He has over 40 years of marketing, operations and supply chain experience and is part of the consulting leadership team responsible for setting strategic direction for solutions that address client challenges. Bill can be reached at William.Cogdill@cognizant.com | LinkedIn: http://www.linkedin.com/in/billcogdill | Facebook: William Cogdill (Bill Cogdill) | Google+: Bill Cogdill.

Karthik Natarajan is a Senior Manager of Consulting within Cognizant’s Manufacturing and Logistics Practice. He has led numerous business transformation and strategic projects across the full spectrum of business processes. His experience includes supply chain consulting, process reengineering and IT strategy. Karthik is part of the consulting leadership team and has over 12 years of technology and business consulting experience. He can be reached at Karthik.Natarajan@cognizant.com.

About Cognizant
Cognizant (NASDAQ: CTSH) is a leading provider of information technology, consulting, and business process outsourcing services, dedicated to helping the world’s leading companies build stronger businesses. Headquartered in Teaneck, New Jersey (U.S.), Cognizant combines a passion for client satisfaction, technology innovation, deep industry and business process expertise, and a global, collaborative workforce that embodies the future of work. With over 50 delivery centers worldwide and approximately 164,300 employees as of June 30, 2013, Cognizant is a member of the NASDAQ-100, the S&P 500, the Forbes Global 2000, and the Fortune 500 and is ranked among the top performing and fastest growing companies in the world.

Visit us online at www.cognizant.com for more information.