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## The Mobile Field Service Update

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*2007 and Beyond*

December 2006

## Executive Summary

An effective field service operation requires the efficient planning, provisioning, and costing of resources – primarily people, inventory, and vehicles. This increasingly requires accurate and frequent views into field service data – such as work order status, technician productivity, and customer satisfaction. With ever-shrinking service response times required by customers, service executives are looking to purchase and/or upgrade field service technology solutions as a top strategy to improve their field service operations.

### Key Business Value Findings

- Best-in-class firms top others in terms of work order completion, SLA compliance, and mean time to repair. As such they see service margins of 17.2%, a full 2.5% more than average firms.
- Field service automation has led to improvements such as 9% reduction in mean time to repair as well as a near 18% increase in service revenues.

**Table i: Best Outperform Rest in Key Metrics**

Metric	Average Response		
	Best in Class	Industry Average	Laggards
# of work orders completed per day per technician	4.9	4.5	3.7
SLA Compliance	91.2%	78.7%	73.6%
Mean Time to Repair (in hours)	6.3	7.9	14.2
Service-driven Profits (as % of Service Revenues)	17.2%	14.7%	11.4%

Source: Aberdeen Group, December 2006

### Implications & Analysis

- 86% of best-in-class firms indicate director or vice-president level oversight of their field service operations.
- Best-in-class field service organizations are nearly three times as likely as others to measure their field service performance in real-time.
- Location-Based Services top the field service technology purchasing intentions of best-in-class service organizations.



## Recommendations for Action

- Pick the best-fit field service automation solution.
- Ensure solution acceptance by involving technicians in selection of user interface and supporting devices.
- Increase executive visibility into service-dedicated P&L.
- Adequately on-board/train employees.
- Replace reliance on paper-based systems and spreadsheets, especially for analytics.
- Increase service parts provisioning in field service plans.
- Share field service data with other value chain stakeholders.
- Address data and network security concerns.

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## Chapter One: Issue at Hand

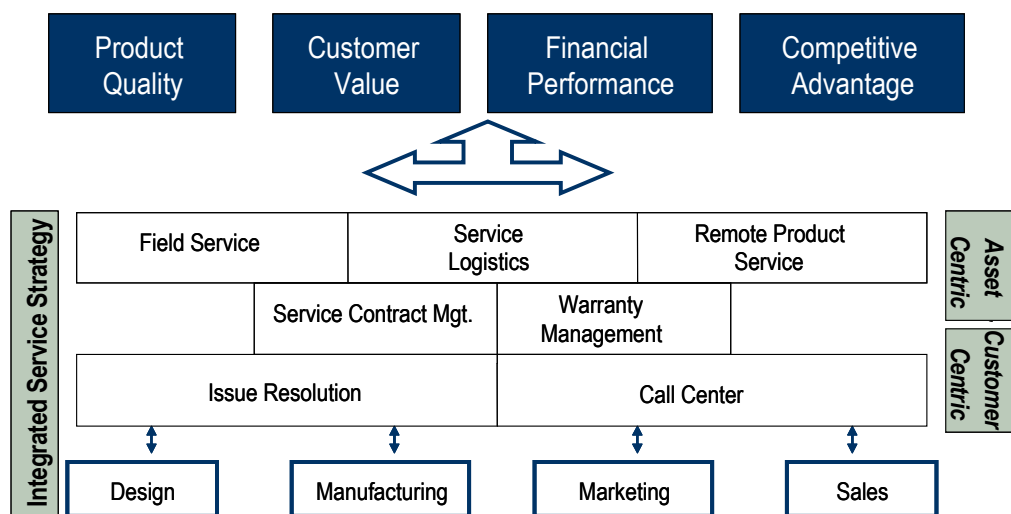
**Key Takeaways**

- Only **13%** of executives are very or extremely satisfied with their field service operations
- 83% of service organizations indicate that their customers require response times of **less than 24 hours**.
- **Two-thirds** of polled companies are looking to purchase and/or upgrade technology to automate portions of field service processes.

**F**ully 72% of C-level executives Aberdeen recently surveyed stated that post-sales service was either very or extremely important to their companies' overall financial and operational performance.

An effective service chain framework integrates asset-centric and customer-centric functions such as service logistics, contract and warranty management, call centers, and field service (Figure 1).

**Figure 1: Service Chain Framework**

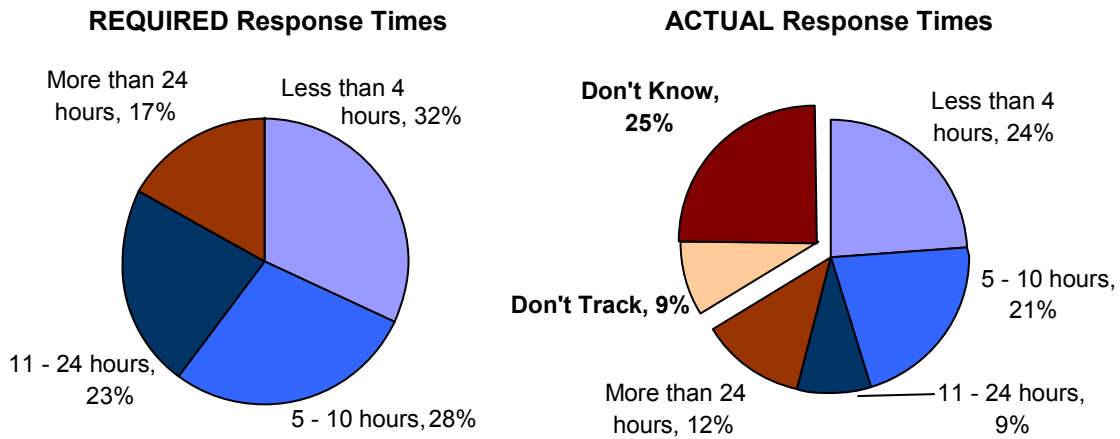


Source: Aberdeen Group, December 2006

Aberdeen's latest research found that 83% of service organizations support customers that require 24-hour service response times, and another 32% must respond within four hours. But only 54% of companies said they could consistently respond within 24 hours, and 24% said they could respond within 4 hours. What is more, 34% of polled companies reported they were unable to even report or track their actual response times (Figure 2).



**Figure 2: Response Times Out of Sync with Customer Requirements**

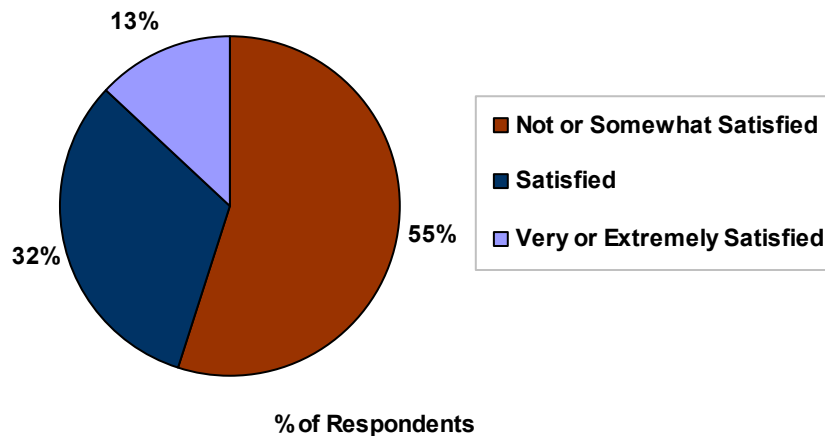


Source: Aberdeen Group, December 2006

### Two-Thirds of Companies Pursue Field Service Automation

With a spotty track record of providing adequate service within ever-shrinking service response windows, service executives are displaying marginal levels of satisfaction with their current field service operations, with 55% reporting they were only somewhat satisfied or not satisfied at all (Figure 3).

**Figure 3: Most Companies Marginally Satisfied with Current Field Service Ops.**



Source: Aberdeen Group, December 2006

So, how are leading companies responding to increasing customer demand for world class service? About two-thirds of respondents reported that they are looking to attack current field service inefficiencies by purchasing or upgrading their technology arsenal (Table 1). In addition, many companies are taking steps toward integrating field service processes more closely with adjacent functions in the service chain. For instance, 44% of

companies reported that they are working to integrate service parts planning and distribution more closely with field service.

**Table 1: Strategies to Reinvigorate Field Service Performance**

Strategy	% Selected
Purchase and/or upgrade technology to automate portions of the field service process	67%
Integrate service parts planning and execution more closely with field service optimization efforts	44%
Assign revenue and profitability targets for service organization	42%
Restructure service organization with executive-level oversight and accountability	41%
Penalize or reward field technicians for missing or exceeding performance targets	32%
Outsource field service to third parties	25%

Source: Aberdeen Group, December 2006

**Case in Point: Mobile Gas**

**Mobile Gas**, a subsidiary of EnergySouth, Inc., serves approximately 100,000 gas customers in the Mobile, Alabama region. The company employs 36 field service technicians and several construction crews that provide a complete line of technical services to Mobile Gas customers, including appliance installation and repair services. Service calls range from 5-minute jobs to some that span more than half a day.

To manage these varying job requirements, the director of customer service chose to upgrade from a paper-based order management and dispatch system in 2001-2002. Mobile Gas evaluated hardware and software solutions with an eye toward cost, ease of use and real-time data connectivity.

The company launched a pilot program which outfitted the technicians with laptops. But the final decision was to deploy a speech-enabled field service solution that enabled Mobile Gas’s technicians to use their existing cell phones to receive assignments, update job status information and report time. The solution was integrated with and automatically updates the work order management and dispatch systems.

As a result of the deployment of the speech-enabled system, Mobile Gas reported the following benefits:

- An increase of 1.5 work orders completed per day per technician, on average,
- A 26% reduction in technician overtime costs and a 50% decrease in clerical labor costs
- Change in service scheduling window from 4 hours, which was met 75% of the time, to 2 hours which is being met 93% of the time.
- An 18% increase in service revenues due to enhanced customer service initiatives.



- Improved customer dispute resolution, with the ability to create and save comments as audio (wav) files. Technicians can record detailed voice messages about a service job, which can be replayed by customer service representatives to help resolve customer disputes or answer customers' questions.

Use of speech technology helped Mobile Gas avoid traditional mobility challenges such as data and network security, complex device management and slow user acceptance. According to the customer service director, a key advantage of a speech interface was the short learning curve. Newly hired apprentice technicians are fully up to speed on using the real-time speech solution within 2-3 days.

## Chapter Two: Key Business Value Findings

**Key Takeaways**

- Best-in-class firms top others in terms of work order completion, SLA compliance, and mean time to repair. As such they see service margins of 17.2%, a full 2.5% more than average firms.
- Field service automation has led to improvements such as a 9% reduction in mean time to repair as well as a near 18% increase in service revenues.
- Inefficient business processes pose the top challenge to successful field service automation initiatives.

**W**hat are the benefits of a successful field service operation? How are the best companies measuring their field service performance and what results should all companies strive for?

Aberdeen used three key performance criteria to distinguish best-in-class companies from average and laggard companies. These key performance indicators (KPIs) represent *financial measures* — with service-driven profits; *operational measures* — with number of work orders completed per day per technician and mean time to repair (MTTR); and *customer-facing measures* — with SLA compliance rates (Table 2).

Based on aggregate scores that incorporated current and past-two-year performance in these metrics, those companies in the top 20% achieved “best-in-class” status, those in the middle 50% were “average,” and those in the bottom 30% were “laggard.”

**Table 2: Best Outperform Rest in Key Metrics**

Metric	Average Response		
	Best in Class	Industry Average	Laggards
# of work orders completed per day per technician	4.9	4.5	3.7
SLA Compliance	91%	79%	74%
Mean Time to Repair (in hours)	6.3	7.9	14.2
Service-driven Profits (as % of Service Revenues)	17.2%	14.7%	11.4%

Source: Aberdeen Group, December 2006

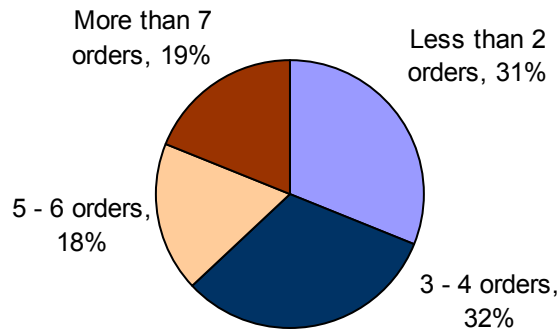
### Mobile FSA Requirements

One of the primary objectives of service organizations looking to upgrade their field service technologies is to enhance field technician productivity, frequently measured by the number of work orders each technician completes per day.



Nearly one-third of polled companies indicated that their field technicians complete fewer than two orders per day (Figure 4). As such, these service organizations are looking to equip their field force with the hardware and software tools to enable them to cover more demand.

**Figure 4: Current Field Worker Productivity**



Source: Aberdeen Group, December 2006

Evaluating field service automation tools and systems, nearly three-quarters of companies indicated that their field technicians require access to customer-specific data – such as service histories, special entitlements, contract clauses, and special requests (Table 3). Other requirements noted by survey respondents include access to information regarding the serviceable asset – service history, product specifications, repair instructions, etc., and access to information on service parts availability and inventory levels.

**Table 3: Requirements for the Field**

Requirement	% Selected
Access to customer information	74%
Access to serviceable asset information	61%
Inventory visibility and ordering capability	55%
Location-specific reporting and confirmation	49%
Capture proof of service (either signature or voice confirmation)	48%
Ability to test defective part/product	43%
On-screen order receipt and status reporting	29%

Source: Aberdeen Group, December 2006

**Case in Point: General Binding Corp.**

At **General Binding Corp. (GBC)** – a \$2 billion document finishing equipment manufacturer – a pager- and phone-based system supported 175 field technicians in North America. The company decided to upgrade to a web-based, mobile application with

smartphones as the hardware option. Under the new system, technicians were able to receive work order details, confirm acceptance and close out orders when finished.

The handhelds also allowed technicians to post their labor/time, parts usage, and travel/expenses against the work order, allowing GBC to accurately track all costs incurred in performing the work order while seamlessly applying any appropriate charges to the customer. The system seamlessly integrated with other corporate systems, which enabled real-time access to customer information, contract details, parts inventory/status, parts manuals, and inspection forms.

The implementation took approximately two months and had GBC prepared to meet its busiest season in the fall of 2005. Post deployment, the company has realized such benefits as the following:

- An increase of one-half work order per technician per day based on a 15% reduction in overall time spent on service calls.
- Reduced service costs by an average of 28%
- Increased service revenues by nearly 8% without adding field staff.
- Consistently able to meet or exceed aggressive service contract commitments.

### Inefficient Processes Shortchange Technology Benefits

The benefits that mobile field service solutions can provide often remain unrealized, as many service organizations suffer from poorly defined business processes. In fact, more than half of polled companies reported that dysfunctional field service processes form the biggest barrier to the successful implementation of mobile field service systems (Table 4).

**Table 4: Field Service Automation Challenges**

Challenge	% Selected
Poorly defined business processes	54%
Integration of mobile system with corporate back office system	52%
Costs of mobile hardware and software are too high	51%
Insufficient IT personnel/resources to support deployment	46%
Misalignment of field service usage requirements and mobile technology	37%
Users are inexperienced with new technology	30%
Wireless information security concerns	13%

Source: Aberdeen Group, December 2006

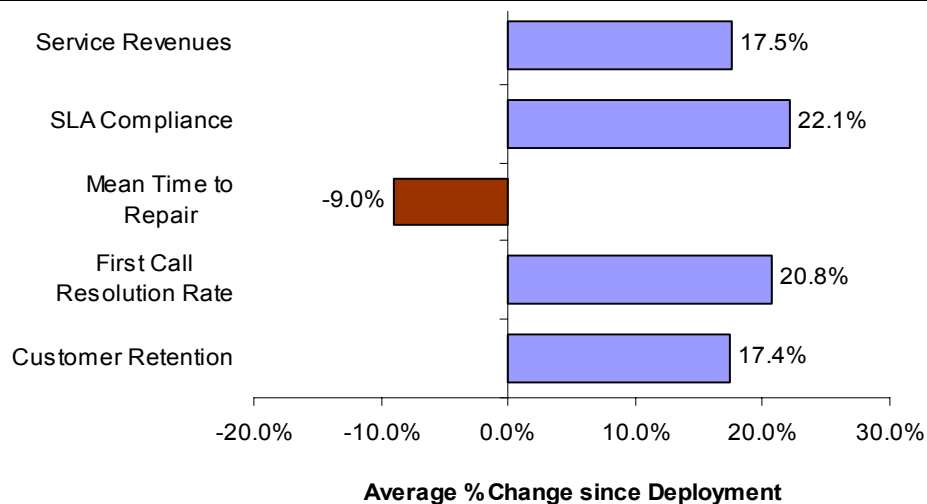
### Benefits: MTTR down by 77 minutes?

Similar to GBC, companies that have successfully implemented field service automation and routing/scheduling solutions have seen quantifiable improvements in key service



metrics. A 9% reduction in mean time to repair can prove significant for firms that are struggling to meet their required response times. To put that into context, laggards that are averaging nearly fifteen hours in their repair times can slash nearly 77 minutes from that metric. Coupled with a 21% boost in first-call resolution rates, it is of no surprise that firms are seeing a large improvement in customer retention and overall service revenues (Figure 5).

**Figure 5: Key Improvements from Field Service Automation**



Source: Aberdeen Group, December 2006

### Location-Based Services Offer a New Avenue

To bolster their customer response times, sometimes in emergency situations, companies are looking to leverage location-based services (LBS) such as GPS, GIS and AVL in their field service operations. Nearly two-thirds of respondents in Aberdeen’s report, [\*Location, Location, Location. Does it Matter in Field Service?\*](#), reported the use of location-based services.

For example, a large Canadian natural gas distributor was looking to leverage location-based services to improve its response times to emergencies so as to comply with public safety regulations. These safety mandates require the company to respond within 35 minutes of an emergency call. The company has nearly 300 field technicians, in addition to contract workers, serves 160,000 customers, and has to respond to nearly 12,000 emergency calls a year.

Therefore the company selected a location-enabled system that allows dispatchers to ascertain the location of the company’s field workforce through GPS-enabled ‘black boxes’ installed in the service trucks. With access to the engineer locations, a dispatcher can contact the appropriate technician upon receipt of an emergency call. Requests by dispatchers not only take into account the distance to the emergency, but also the current status of the technicians’ work orders as well as a technician’s skills and expertise. The project manager claims, “A technician who is only 2 miles away but on the 23<sup>rd</sup> floor of an apartment building, or right in the middle of the job, isn’t the best candidate to respond to an emergency.”

The company has historically been successful in meeting this requirement especially during regular work hours. With the recent implementation of its location-enabled system in December 2006, the company is looking to further strengthen its ability to meet the stringent 35-minute requirement on a 24/7 basis. Over the next quarter, the company also plans to use its newly installed in-vehicle ‘black boxes,’ to efficiently monitor vehicle use to enhance preventive maintenance of its trucks and reduce overall gas emissions.

In addition to meeting stringent response requirements as evidenced in the case above, service organizations using LBS have been able to distance themselves from competitors with respect to key field service productivity and performance metrics.

**Table 5: LBS Adoption Payoffs**

Metric	Average Response	
	LBS Users	LBS Non - Users
# of work orders completed per day per technician	4.3	3.6
Work/Travel Time Ratio	1.93	1.79
Service-driven Profits (as % of Service Revenues)	15.1%	14.0%

Source: Aberdeen Group, November 2006



## Chapter Three: Implications & Analysis

### Key Takeaways

- 86% of best-in-class firms indicate director or vice-president level oversight of their field service operations.
- Best-in-class field service organizations are nearly three times as likely as others to measure their field service performance in real-time.
- Location-Based Services top the technology purchasing intentions of best-in-class service firms.

While best-in-class service organizations differentiate themselves from the rest in terms of key productivity, customer satisfaction, and service profitability metrics, they are also the most likely to establish an organizational framework in support of their technology initiatives.

Such a framework encompasses five key categories: (1 process (coordination of all service stakeholders); (2 organization (corporate focus/philosophy, level of accountability); (3 knowledge management (visibility into data for all value chain stakeholders); (4 technology usage; and (5 performance measurement (metrics in place, consistency of evaluation).

**Table 6: Field Service Competitive Framework**

	Laggards	Industry Average	Best-in-Class
Process	Execute service activities through individual worker's knowledge, reconcile operational, financial, and customer status with system of record every few days or longer.	Execute service activities through individual worker's knowledge, reconcile operational, financial, and customer status with system of record daily or every other day.	<b>Execute service activities through shared organizational knowledge, reconcile operational, financial, and customer status with system of record in real-time or near real-time</b>
Organization	Service is considered purely as cost, and there is no discrete management or P&L for service chain operations.	Director-level executive in charge of cost cutting initiatives for service chain operations.	<b>Director-level or higher (often VP level) executive oversees P&amp;L and profitability targets for service chain operations.</b>

	Laggards	Industry Average	Best-in-Class
<b>Knowledge Management</b>	Limited to no service-related data is systematically captured, stored, or shared with value chain counterparts.	Aggregated service data is captured over time, housed within the service organization and shared with other value chain counterparts upon request.	<b>Customer- and product-specific data is captured point-of-service and systematically shared with value chain counterparts.</b>
<b>Technology Usage</b>	Primary automation tools are spreadsheets.	Primary automation tools are CRM and/or other back-office systems.	<b>Primary automation tools are mobile field service automation (FSA) systems, integrated with back-office enterprise systems.</b>
<b>Performance Measurement</b>	Service chain performance is not systematically tracked or measured.	Weekly analysis of service chain performance, primarily against cost-related targets.	<b>Real-time measurement of field worker and asset productivity. Measurements and forecasts are made against clearly defined productivity targets.</b>

Source: Aberdeen Group, December 2006

### The 'CSO' Effect

As mentioned previously, the top challenge preventing successful mobile field service implementation is the lack of clearly defined field service business processes. Clearly defined processes are usually the end result of senior-level visibility into and accountability for service chain performance.

Companies that run service chain operations as a profit center have been more successful in allocating appropriate budgeting for process reengineering and automation initiatives. Fully 86% of best-in-class service organizations are actively led by director, vice-president or C-level executives who monitor service-driven profits and revenues. Meanwhile, 41% of laggards report no discrete management for service chain activities.

Those companies that have director-level or higher oversight of service chain operations completely outshine those with no discrete service management in terms of productivity and profitability metrics (Table 7).



**Table 7: The ‘CSO’ Effect**

Service Chain Management Structure	Average Performance
Vice-president or director level oversight for P&L and cost-cutting	Mean time to repair – 6.5 hours Work orders per day per field technician – 4.4 Service profitability (% of revenues) – 15.9%
Service is viewed purely as cost , and there is no discrete management or P&L for service chain operations	Mean time to repair – 14.6 hours Work orders per day per field technician – 4.0 Service profitability – 11.0%

Source: Aberdeen Group, December 2006

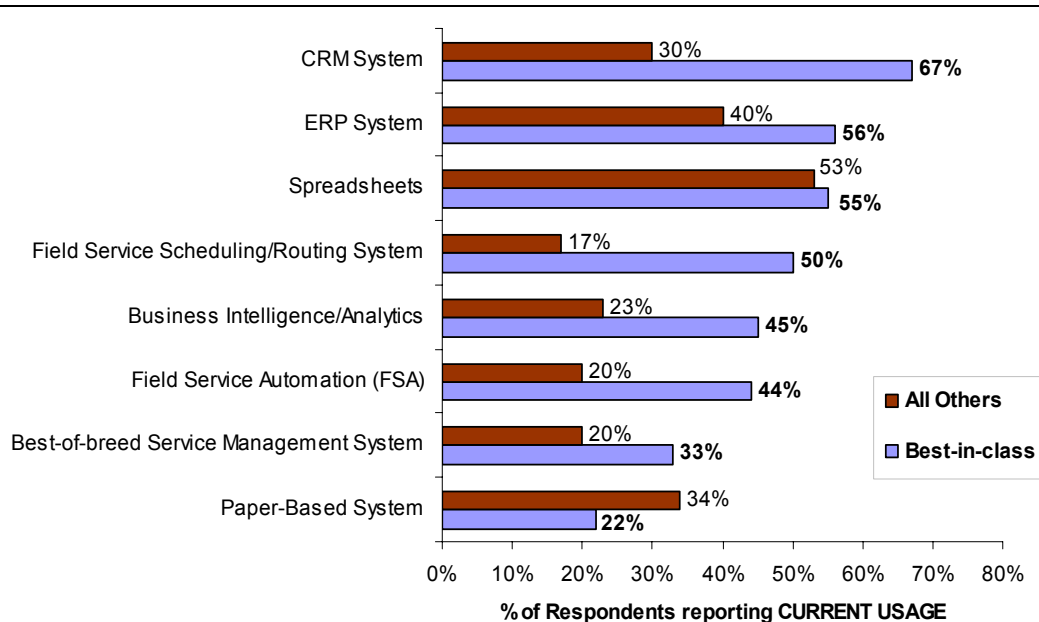
### Scheduling/Routing Optimization Differentiates Best-in-Class

Often endorsed by senior service executives, top-performing service organizations are investing in field service automation solutions much more aggressively than their competitors. About two-thirds of best-in-class respondents have deployed CRM systems, and half are using field service scheduling/routing optimization solutions. Further, leading service organizations are almost twice as likely to be using business intelligence/analytics to uncover performance trends (Figure 6).

Usage patterns indicate a large gap in the use of scheduling/routing solutions by best-in-class firms as compared to all other firms. These systems help to efficiently coordinate the field technician schedules with incoming orders. Aided by location-specific data, these solutions can also greatly reduce technician transit times to work locations.

For example, at **Avaya** – a global giant in communications systems – there was an immediate need to reduce the dependence on the company’s home-grown service dispatch system that supported nearly 4,000 field engineers in the U.S. The company deployed a fully automated scheduling application that was integrated with its existing ERP and dispatch systems. Post deployment, the company saw a 6% reduction in overall technician travel time and eliminated three dispatch centers previously responsible for manual scheduling and dispatch.

**Figure 6: Best-in-Class Shun Paper-Based Systems**



Source: Aberdeen Group, December 2006

Looking into 2007 and beyond, field service technology buying intentions of best-in-class firms indicate a shift from the use of high-level functionality of enterprise-wide ERP and CRM systems in support of service, to service-specific automation, either in the form of a new system or in the form of a service-specific module or add-on to an enterprise system (Table 8).

**Table 8: Best-in-Class Look Ahead to LBS and BI**

Solution Usage Plans	% Selected (Best-in-class)
Location-Based Services	40%
Business Intelligence/Analytics	31%
Field Service Automation	28%
Best-of-breed Service Management Systems	28%
Field Service Scheduling/Routing Solutions	17%
CRM Systems	6%
ERP Systems	6%

Source: Aberdeen Group, December 2006

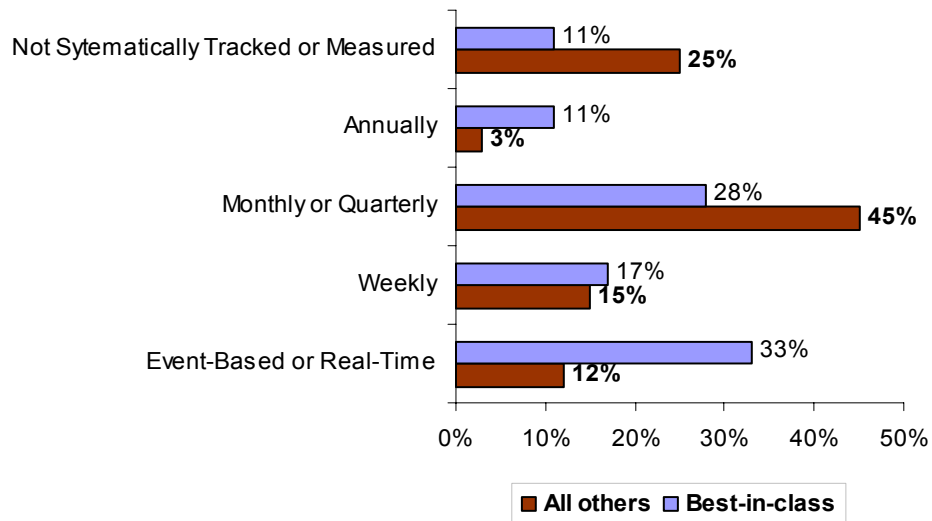
### Data Visibility Drives Service Chain Performance

Field service solutions can lead to a flood of vital data in such areas as customer satisfaction, service productivity, and product usage and reliability. Leading service chain lead-



ers are looking to continuously monitor their progress in terms of productivity, customer satisfaction and profitability on a real-time basis. One-third of best-in-class firms are measuring performance on a real-time basis with only 12% of all other firms reporting the same level of measurement (Figure 7).

**Figure 7: Best-in-class Most Likely to Measure in Real-time**



Source: Aberdeen Group, December 2006

While immensely valuable to the service organization, customer feedback and product usage data can also be used by other value chain teams such as sales, marketing, and product design. This feedback can directly assist these teams in modifying their offerings so as to better match customer needs.

For instance, GBC monitors feedback and service work order history for all of its products and parts and communicates this information to the appropriate product engineers to address recurring issues or complaints. With this feedback, engineers can make modifications at the product design stage and prevent similar failures in future iterations of the product.

Forty percent of best-in-class service organizations indicate that field service data is captured and systematically shared with other value chain counterparts. Another 31% of these organizations state that this data is held in the service organization and periodically shared with counterparts in sales, marketing, product design etc. Laggards, on the other hand, are less likely to have systems or processes in place to capture or share vital customer- and product-specific data.

## Chapter Four: Recommendations for Action

**Key Takeaways**

- Pick the best-fit field service automation solution and ensure acceptance by involving technicians in user interface and supporting device selection.
- Increase service parts provisioning in field service plans.
- Share field service data with other value chain stakeholders.
- Address data and network security concerns.

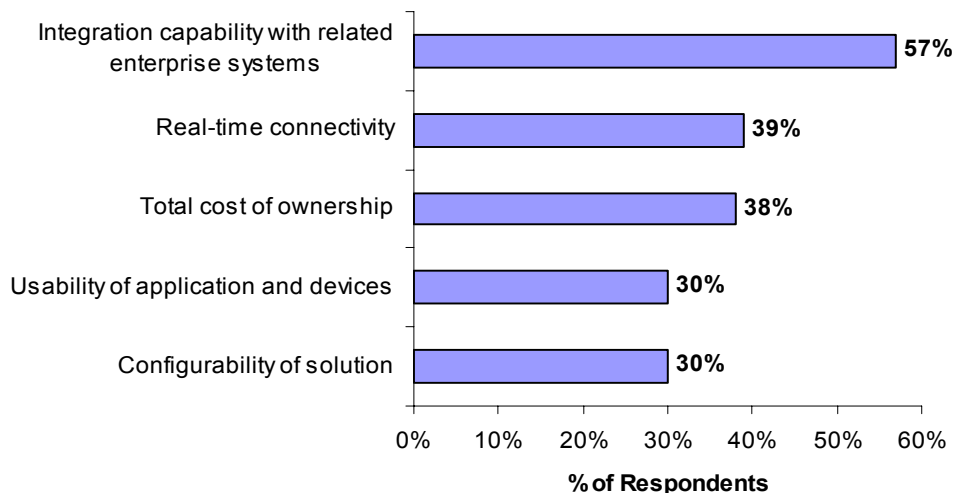
**A**s manufacturers look to differentiate themselves in a commoditized market rife with competing products, they will need to dedicate the required resources to maintaining brand loyalty and customer satisfaction in order to retain existing customers and acquire new ones.

As such, their approach to field service will have a significant effect not only on the bottom-line, but also on their ability to grow revenues and profits. The following are recommendations for manufacturers and their service network partners to consider as potential steps for driving field service improvements.

### 1. Pick the best-fit field service automation solution.

For the 67% of firms looking to purchase new solutions or to upgrade their existing field service infrastructure – the first step is to make a best-fit selection from the robust catalog of hardware, software, and connectivity options that are available. Polled companies indicate that back-office integration tops their list of solution requirements, with real-time connectivity and total cost of ownership also important considerations (Figure 8).

**Figure 8: Criteria for Field Service Automation Solution Selection**



Source: Aberdeen Group, December 2006



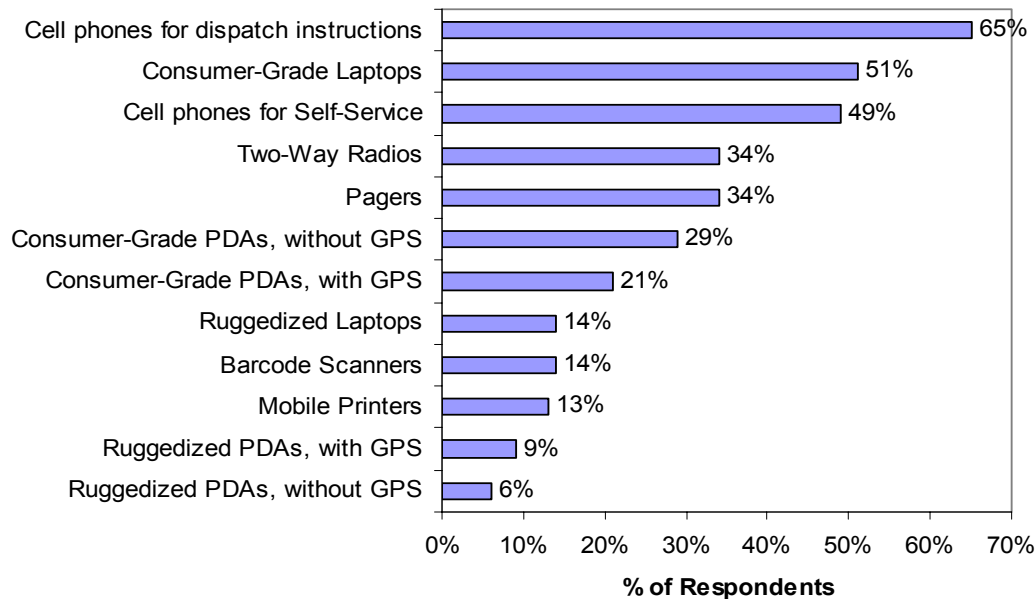
## 2. Involve technicians in selection of user interface and supporting devices.

The benefits of mobile field service solutions can be largely negated if there is insufficient acceptance from the field force. Companies represented in this research claim, “Technicians like to spend their time getting the work done, rather than spend time filling out forms or troubleshooting devices that don’t do what they need them to do.” As such, field workers should be tapped in the selection of a suitable interface to facilitate the transfer of data and instructions, and subsequently in the choice of devices in support. E.g. Mobile-Gas’s techs use a speech interface with their current cell-phones whereas GBC’s techs interact via a graphical interface on their smartphones.

In terms of supporting hardware selection, nearly a quarter of all firms state that 100% of their technicians are equipped with mobile devices. Thirty percent of companies state the usability of devices and applications is a key factor in solution selection and as such are taking steps to select the most appropriate solutions to match the needs of their field force (Figure 9).

Other Solution Selection Factors
As mentioned by survey respondents and companies interviewed by Aberdeen, the following are other factors considered when selecting a mobile solution.
1) Ability to include non-employees
2) Ability to work offline when there is no network coverage
3) Deployment Model – On Premise vs. On Demand
4) Reliability of Solution
5) Reputation of Vendors
6) Scalability of solution
7) Security of data/information
8) Training for Employees
9) Web access availability
10) Wireless Connectivity

**Figure 9: Cell Phones, Laptops Still Dominate Mobile Field Service Device Usage**



Source: Aberdeen Group, December 2006

At **Colorado Springs Utilities**, when the company was selecting a mobile field service solution, it asked potential vendors to bring in a selection of mobile devices and then let its field service technicians make the final decision on device selection. Springs Utilities' IT department first set technical standards for the solution, including operating system and storage capacity, and then involved the people who would be responsible for using the solution day in and day out. In addition to ensuring the selection would support the technicians' specific work tasks, this review process smoothed acceptance of the entire solution once the system was rolled out.

### **3. Increase executive visibility into service-dedicated P&L.**

With 41% of laggards stating scant management of service-related P&L, a vital step to ensuring mobile field service automation success is to enhance executive-level visibility into and accountability for service operations. Forty-six percent of respondents claim that lack of IT resources are a major barrier to adoption of LBS and field service technology. Having an executive champion can be vital in allocating IT budget toward field service automation.

### **4. Adequately on-board/train employees.**

Service employees, such as dispatchers, depot workers, customer service representatives or field technicians must be comfortable with the technology that they are using to ensure effective use of these tools. As displayed by firms such as GBC and Mobile Gas, selection based on employee acceptance can go a long way in determining field service automation success.

### **5. Replace reliance on paper-based systems and spreadsheets, especially for analytics.**

Service organizations striving to become best-in-class need to take the necessary steps to move away from paper- and spreadsheet- based systems to measure and forecast service requirements. Nearly 45% of top companies are actively using business intelligence/analytics to provide their executive decision makers with the required information to track and forecast service budgeting, resource usage, and overall performance.

### **6. Share field service data with other value chain stakeholders.**

The value of excellent service can be negated if a product or part continues to break-down and requires frequent downtime. Sharing of service-related and usage information should be periodically shared with other value chain departments so as to enable them to tweak their offerings to match customer needs.

### **7. Increase service parts provisioning in field service plans.**

Seamless incorporation of parts can ensure that arrival of a technician at a job site is matched with the availability of the right part at the right time. A technician arriving on time, while essential to compliance or regulatory requirements, is worth very little without the adequate parts. According to Aberdeen's study on location-based services, best-in-class firms are looking to invest in RFID and other technologies to do just this, in order to effectively coordinate the flow of people, vehicles, and parts in the service chain.



### **8. Address network and data security concerns.**

Enhanced data access through field service automation raises the need to have controls in place to protect this often vital customer- and asset-centric data. This is often an overlooked factor in solution selection and implementation as evidenced by only 13% of firms including it as a top selection criterion.

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## Author Profiles

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As an analyst in the service chain management practice, Sumair Dutta researches and examines how service executives are utilizing technology and streamlining business practices to improve post-sales service and support processes, analytics and management. Dutta examines how best-in-class service organizations are reengineering their service chains for optimum performance and increased profitability.

Dutta has a strong finance background, ranging from strategic finance to asset management and financial services. He has previously worked as a Financial/Research Analyst, both locally and internationally, examining the financial impact of strategic decision-making on both the value and level of equity and debt investments.

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Mark Vigoroso spearheads primary market research in field service management and assesses software and services that automate and streamline these and other value chain processes.

Vigoroso's current efforts include quantifying Global 5000 executives' strategies, experiences, and deployment plans in the area of field service optimization.

He has published research in the areas of strategic sourcing, supplier performance measurement, enterprise spending analysis, total cost management, global trade management, and asset management.

Vigoroso has spent years covering electronic procurement, supply chain, and logistics management trends as a journalist, editor, speaker, and columnist for various industry publications. Specializing in e-business applications and strategies, he was an editor at *Purchasing* magazine and *Manufacturing Marketplace*. He has also been a columnist and feature writer for *The E-Commerce Times*, *ZDNet TechUpdate*, and *Workz.com*.



## Appendix A: Research Methodology

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In November and December 2006, Aberdeen Group examined the field service management procedures, experiences, and intentions of more than 300 enterprises in aerospace and defense (A&D), automotive, high-tech, industrial products, and other industries.

Responding supply chain, logistics, and operations executives completed an online survey that included questions designed to determine the following:

- The degree to which post-sales service management and field service impact corporate strategies, operations, and financial results
- The structure and effectiveness of existing field service management procedures
- Current and planned use of automation to aid these activities
- The benefits, if any, that have been derived from field service automation and other initiatives

Aberdeen supplemented this online survey effort with telephone interviews with select survey respondents, gathering additional information on service parts management strategies, experiences, and results.

The study aimed to identify emerging best practices for mobile field service and provide a framework by which readers could assess their own field service capabilities.

Responding enterprises included the following:

- **Job title/function:** The research sample included respondents with the following job titles: procurement, supply chain, field service, logistics executive or manager, 41%; C-level executive, 18%; field service, customer satisfaction, procurement, information technology director, 15%; Senior/Executive Vice-President or Vice-President, 12%.
- **Industry:** The research sample included respondents a range of industries/sectors such as, Telecom/Utilities, 20%; High-tech/Medical Manufacturing, 19%; Construction, 13%; Consumer Facing Industries, 16%; Public Sector/Government, 9%; Industrial Manufacturing, 5%; Aerospace and Defense, 2%.
- **Geography:** 68% of survey respondents were from North America. The remaining respondents were from EMEA, 21%; APAC region, 8%; South/Central America and Caribbean, 3%.
- **Company size:** About 18% of respondents were from large enterprises (annual revenues above US\$1 billion); 29% were from midsize enterprises (annual revenues between \$50 million and \$1 billion); and 53% of respondents were from small businesses (annual revenues of \$50 million or less).

## *Appendix B:* **Related Aberdeen Research & Tools**

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Related Aberdeen research that forms a companion or reference to this report include:

- [\*Location. Location. Location. Does it Matter in Field Service?\*](#) (October 2006)
- [\*Best Practices in Mobile Field Service\*](#) (June 2006)
- [\*Mobile Field Service Solution Selection Report\*](#) (December 2005)
- [\*The Mobile Field Service Benchmark Report\*](#) (September 2004)

Information on these and any other Aberdeen publications can be found at [www.Aberdeen.com](http://www.Aberdeen.com).

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