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Location. Location. Location Does it Matter in Mobile Field Service?

Put your service operation on the map.

October 2006

Executive Summary

Field service forms an integral link in the overall service chain. Fully 66% of firms state that field service is either “very” or “extremely” important to their operational and financial performance with only 13% stating a similar level of satisfaction with their field service. As such, service organizations are scanning the horizon for technology solutions to assist them in increasing the efficiency of their field service organizations.

Key Business Value Findings

Sixty-three percent of all respondents claim the use of location-based solutions (LBS) such as GPS, GIS, AVL etc., in their field service. Most firms are using LBS data for input parameters in their scheduling and routing applications. Firms that currently use LBS complete almost **one full work order** per technician per day more than non-LBS users and this equates to a **110 bps advantage in service margins**.

Implications & Analysis

Eighty-three percent of best-in-class firms state that they currently use LBS tools vs. 51% of laggards. Top firms are also more likely to support their technology initiatives with senior-level oversight as well as real-time process integration. As such, these firms perform better in terms of key metrics, not only against all other firms but also against all firms that only state the use of LBS tools (Table i).

Table i: Best-in-Class Firms Achieve Top Service Performance

Metric	Average Response	
	Best in Class	All Others
No: of work orders completed per day per technician	5.0	4.2
Work/Travel Time	2.5	1.7
Serviceable asset uptime	83.3%	81.4%
Service-driven Profits (as % of Service Revenues)	17.1%	14.8%

Source: Aberdeen Group, October 2006

Recommendations for Action

1. Identify your needs and pain points and match with the myriad of LBS solutions.
2. Bring your employees on board – ensure that they are adequately trained and even compensated on the enhanced value of field service technology.
3. Increase senior-executive visibility into benefits from field service and LBS tools.



4. Use the LBS data wealth in the form of proactive service demand management (e.g. geographic information of service request volumes) as well as in other value chain components such as sales, marketing and product design to enable these teams to tailor their offerings to better match customer needs.

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Chapter One: Issue at Hand

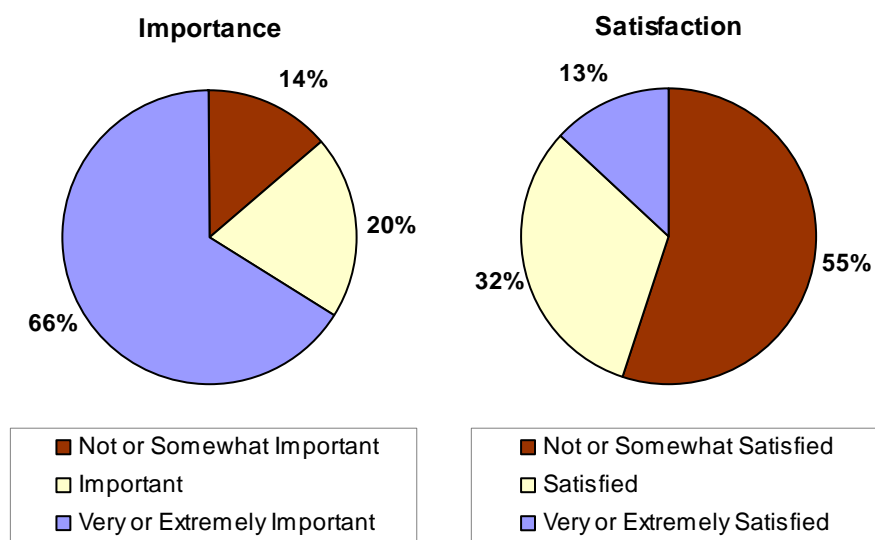
Key Takeaways

- 66% of respondents claim that field service is either “very” or “extremely” important to their operational and financial performance, while only 13% state the same level of satisfaction with their field service operations.
- 69% of firms aim to purchase/upgrade technology to automate portions of their field service operations.
- In terms of technology usage, 63% of firms state they currently use LBS in their field service operations.

Enhanced customer satisfaction via post-sales service is no longer the hidden secret of best-in-class companies. It has become an absolute necessity for companies that are facing reduced product margins from increased competition and commoditization. As such, a service organization’s ability to plan and provision its field resources – technicians, inventory, and vehicles – can make the difference between missing or meeting customer commitments.

It isn’t surprising therefore that two-thirds of respondents to Aberdeen’s recent research effort state that mobile field service is either “very important” or “extremely important” to their operational and financial performance. But only 13% of respondents are “very satisfied” or “extremely satisfied” with their field service operations (Figure 1).

Figure 1: The Yawn of Dissatisfaction



Source: Aberdeen Group, October 2006



The staggering gap between perceived importance and satisfaction raises key questions about the current usage of mobile field service systems and the capabilities that are required to improve performance.

Build/Buy Me a Bridge

Not satisfied with their current level of data access or field service performance, line-of-business executives are scanning the horizons for solutions – in the form of technology adoption, process changes, and organizational support around their service operations. As a top strategy, 69% of respondents state they are looking to purchase or upgrade technology solutions to automate their field service operations (Table 1). In addition, better service parts processes and overall service organizational restructuring round off the list of the top three strategies by companies to tackle their field service processes.

Table 1: Technology Tops the Strategic Shopping List

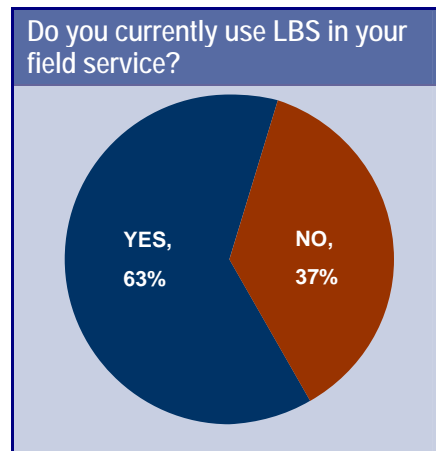
Strategy	% Selected
Purchase and/or upgrade technology to automate portions of the field service process	69%
Integrate service parts planning and execution more closely with field service optimization efforts	47%
Restructure service organization with executive-level oversight and accountability	40%
Assign revenue and profitability targets for service organization	39%
Penalize or reward field technicians for missing or exceeding performance targets	34%

Source: Aberdeen Group, October 2006

You Are Here?

A key technology ingredient that service organizations are looking to employ is location-based technologies. In fact, 63% of respondents currently state they use some form of location-based solutions to improve their field service performance.

In essence, location-based services – such as global positioning systems (GPS), geographic information systems (GIS), and automatic vehicle location (AVL) systems – enable service organizations to pinpoint the locations of their field assets to enhance asset security, improve dispatch accuracy, drive workflow compliance, and improve responsiveness to customer service requests.



For the repair service division of one **commercial appliance** behemoth, field service processes had traditionally been manual and paper-based. Technicians relied on couriers



to deliver their route assignments to their homes each night along with replacement parts. Under this system, technicians did not find out if a customer had cancelled a service call until they had already arrived on site, significantly impacting worker productivity. And because route and service schedules were not updated in real-time, technicians were often unable to meet the service delivery times promised to customers.

Realizing it needed to automate its field service operation, the service organization equipped its 1,000-strong field force with GPS-enabled handheld devices that allowed service workers to map routes to customer locations and provide status updates to dispatchers.

As a result of the deployment, the company experienced marked improvements in customer satisfaction with customer service levels increased to 98.8%, and technicians improved their daily work order completion rate by 20%. Not surprisingly, the technician productivity improvements exceeded project goals by 250%.



Chapter Two: Key Business Value Findings

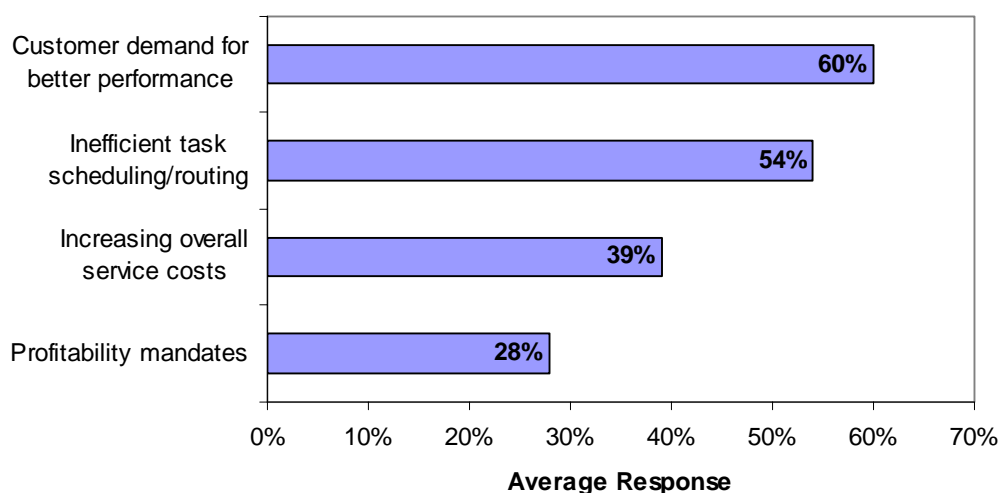
Key Takeaways

- Customer demand tops the list of market drivers for LBS adoption.
- 33% of companies that use LBS state that they have seen an increase in customer retention since the adoption of specific LBS tools.
- LBS users have seen a 16.4% increase in service revenues and a 15.6% in customer retention, on average.
- LBS users, on average, complete 0.7 more work orders per technician per day when compared to non-LBS users. This leads to a near 110 bps advantage in service margins

Location-based solution penetration in field forces is as high as 63% according to Aberdeen's recent survey. Solution types in the LBS spectrum range from standard GPS handhelds, to embedded AVL devices, to RFID tags for service parts and inventory tracking.

Organizations moving toward LBS have identified key market drivers that have pushed them to adopt LBS solutions. Nearly 60% of firms that currently leverage LBS solutions state that customer demand for better service performance is the top market driver (Figure 2). Close behind is the need to improve inefficient task scheduling and routing, which is core to field service fleet and asset management.

Figure 2: Market Drivers for LBS



Source: Aberdeen Group, October 2006

Scheduling vs. Big Brother

The need for improved customer response times through efficient fleet routing and management directly correlates to the way that organizations are actively using their location-based solutions. In a poll of the current uses for LBS solutions, 61% of companies reported that they were using location intelligence as an input parameter for field service scheduling and routing applications (Table 2).

A notable standout is that more than half of companies use LBS data to support a “big brother” approach – in essence, using the data to keep an eye on their field technicians. While some of this is done to monitor field employees and assets in the time of emergencies, a major use is to identify technicians who may be using assets “on the clock” for purposes not essential to work.

Table 2: Routing/scheduling Push LBS Adoption

Response	% Selected
As input parameters for routing and scheduling application	61%
To identify underperforming and non-compliant technicians	54%
To resolve disputes with customers	43%
To monitor service vehicle health and performance	28%

Source: Aberdeen Group, October 2006

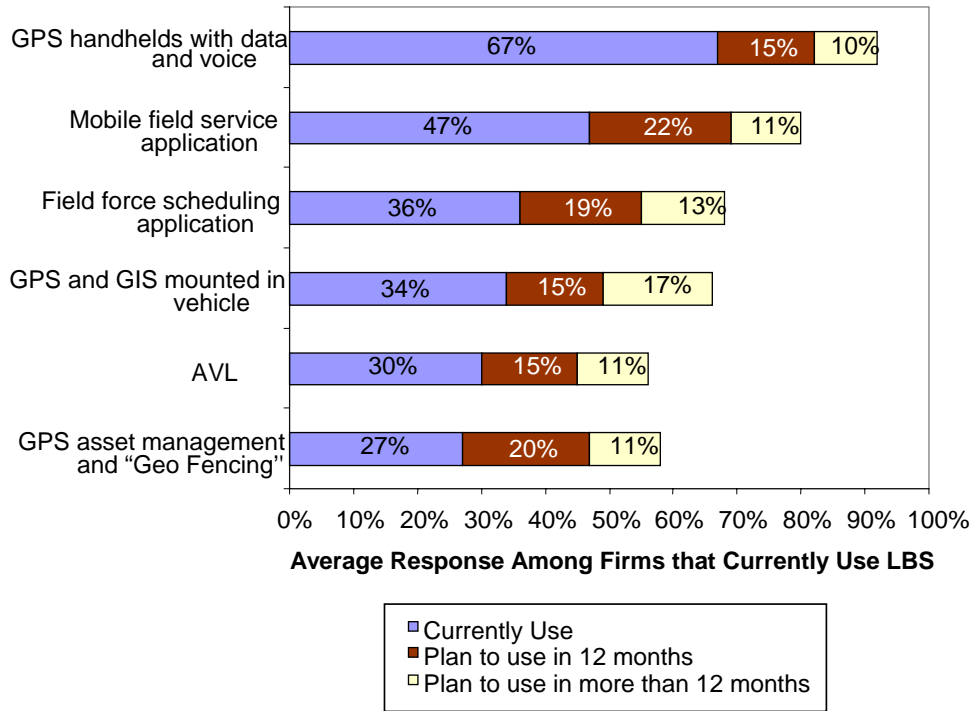
Two-thirds of current LBS users equip their field force with GPS handhelds with data and voice. These devices not only allow back offices to track field workers but also enable point-of-service recording of key issue data. Organizations also report frequent use of GPS and GIS mounted in-vehicle to allow for better routing intelligence for their field technicians.

In conjunction with field routing, AVL is also currently being leveraged to allow for asset tracking as well as efficient service staff routing and scheduling. To integrate the functionality of the various LBS tools, 47% of respondents use mobile field service applications while 36% use a specific field force scheduling application (Figure 3).

Future LBS usage patterns indicate the organizational desire to upgrade GPS handheld capabilities with barcode scanning to enhance point-of-service parts capture for inventory management purposes. RFID tags for service parts also represent a future direction – an indication of service firms trying to mobilize their service parts and integrate them with their field service optimization efforts (See [The Convergence of People and Parts in the Service Chain](#)).



Figure 3: Current and Future LBS Usage



Source: Aberdeen Group, October 2006

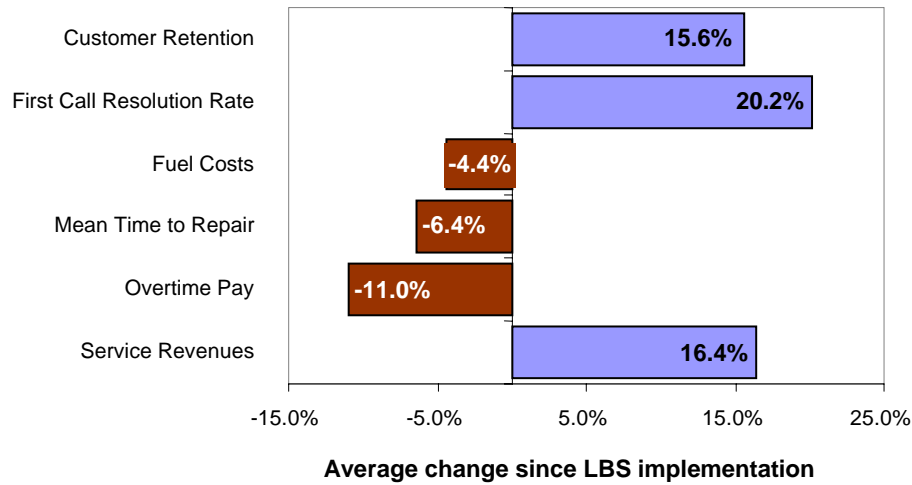
Value Proposition – Service Revenues up 16%

The business value of LBS in field service can best be measured in two primary areas: 1) the directional improvement of key performance indicators pivotal to field service productivity, and 2) the relative value of these key metrics when compared to non-LBS users.

Fully 30% of companies that use LBS state that they have seen an increase in customer retention, and 33% report an increase in service revenues since LBS deployment. Specific to field force management, 44% of companies have seen a drop in overtime pay with another 36% stating a reduction in mean time to repair (MTTR).

Companies that are using LBS solutions have seen customer retention boosts of almost 16% on average. This increase is driven in part by improved resolution times and rates (Figure 4). These enhancements map to an overall 16.4% jump in service revenues. On the cost side, efficient route optimization and asset usage have generally led to savings in fuel and insurance costs which add to the bottom line. Given the recent spike in oil prices, a 4.4% reduction in fuel costs can be significant, especially for organizations with larger geographic coverage and larger service van/truck fleets.

Figure 4: Service Enhancements from LBS



Source: Aberdeen Group, October 2006

The final piece in the LBS value proposition is that field service organizations that leverage location intelligence can complete more work orders than those that are not using LBS data. On average, LBS-enabled service organizations complete 0.7 more work orders per technician per day (Table 3). With the average technician staff in the Aberdeen survey being 50 technicians – that amounts to 35 extra work orders completed on a daily basis. This differential can be attributed to the fact that LBS-enabled field forces spend less time traveling to and from worksites.

Further, LBS enhancements have allowed companies to shave nearly three minutes of travel for every 60 minutes of time spent at worksites. Once again, with 50 technicians working eight hours a day, this can amount to 1,200 minutes of travel time saved.

On both counts – increase in work completed and reduction in travel time – service organizations can demonstrate marked improvements in service-driven profit margins and overall customer satisfaction.

Table 3: 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, October 2006



Case Study: Sheetz Reaches Productivity Heights with GPS

Convenience store operator **Sheetz** uses about 60 field technicians to maintain food service equipment, gasoline dispensers, HVAC, and other equipment at its 285 stores across five states, and was losing track of parts and work order information amidst ad hoc phone calls and mismanaged paperwork.

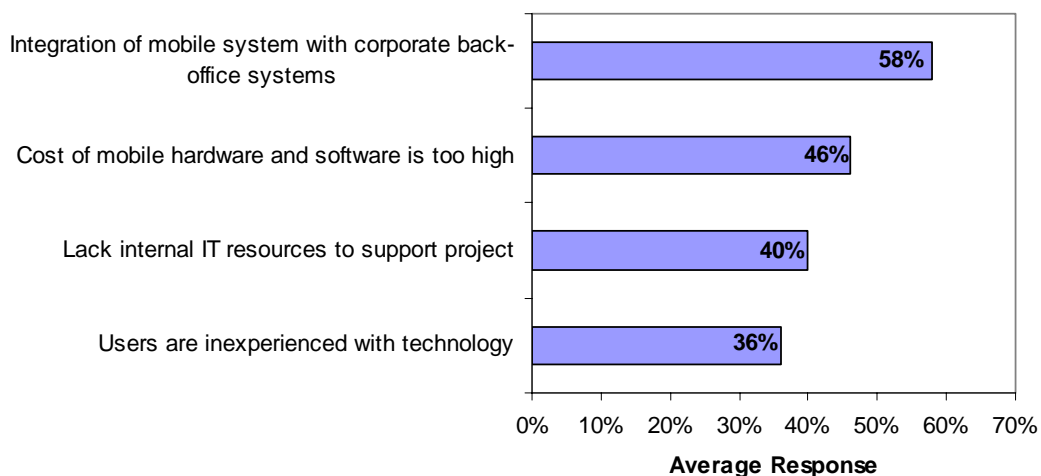
The company set about eliminating paper and manual processes from its field service operations and deployed a mobile solution that allows technicians to electronically close service calls and tracks technicians' locations using global positioning system (GPS) receivers in the service vehicles.

As a result of its mobile service operation, Sheetz has improved the accuracy of work order records, improved response times, driven process adherence by ensuring mandatory data is collected before service orders can be closed, and increased productivity through reports that chronicle the effectiveness of each technician.

Integration Issues Pose LBS Barrier

Even with such improvements seen in key performance metrics, 37% of companies polled by Aberdeen still do not use any type of location-based solutions in their field service organizations (Figure 5). Primarily, integration issues are significant enough to prevent this group of companies from pulling the trigger on LBS investments. Integration failures with other corporate systems can cause delays in the use of LBS-enabled data and thereby take a bite into the overall LBS value proposition.

Figure 5: Integration Poses Biggest LBS Barrier



Source: Aberdeen Group, October 2006

Amongst this group, however, there are prospects of field force and LBS-related purchases in the next 12 months and beyond. These prospects range from handheld GPS devices to more integrated mobile workforce tools that represent a more systematic and complete revamping of current field service systems (Table 4).

**Table 4: LBS Deployment Trends on the Horizon**

Technology	Average for Respondents Who do not Currently Use LBS		
	Within 12 months	12-24 months	More than 24 months
GPS handhelds with data and voice	30%	20%	8%
GPS and GIS mapping in-vehicle	24%	14%	15%
Web-based Mapping and Tracking	20%	3%	11%
GPS handhelds with data, voice and barcode scanning	19%	19%	13%
AVL	16%	25%	5%
GPS Asset Management and 'Geo-Fencing'	15%	12%	12%
RFID tags for service parts management	11%	10%	11%
Mobile field service application	35%	29%	14%
Field force scheduling application	34%	24%	11%
Field force routing application	25%	29%	8%

Source: Aberdeen Group, October 2006



Chapter Three: Implications & Analysis

Key Takeaways

- Best-in-class firms average 5 work orders per day per technician, display a work/travel ratio of 2.5 and service margins of 17.1%.
- 83% of best-in-class firms use LBS in their field service operations compared to 51% for laggards.
- 89% of best-in-class firms have vice-president or director level oversight of their field service P&L, cost-cutting, and productivity targets.
- GPS handhelds with data and voice are used by 64% of best-in-class and 42% report the use of AVL in their field service. Nearly 56% of best-in-class plan on using RFID tags for their service parts in the near future.

Location-based solutions are a vital tool in the quest to improve field service efficiency. As noted, they can help boost key metrics such as customer retention and overall profitability. However, the adoption of technology solutions such as LBS is most successful if integrated effectively within an overall service chain strategy.

As such, these key strategies revolve around four major pillars – process, organization structure, knowledge management, and performance measurement. Best-in-class service organizations adopt a holistic field service approach that addresses these four pillars in conjunction with technology deployment.

Aberdeen defines “best-in-class” companies as the top performers in two areas: 1) current performance in critical performance metrics, and 2) positive change in these metrics over the past two years.

Best-in-Class: Enhance Margins by 230 Basis Points

Field technicians at best-in-class service organizations spend almost 11 minutes less in travel time (for every 60 minutes of work time) to their work sites when compared to technicians at all other companies. This computes to almost one additional work order completed per worker. This metric directly ties into an average 230 bps lead in service margins (Table 5).

Table 5: Best-in-Class Separate Themselves from the Rest

Metric	Average Response	
	Best in Class	All Others
# of work orders completed per day per technician	5.0	4.2
Work/Travel Time Ratio	2.5	1.7
Service-driven Profits (as % of Service Revenues)	17.1%	14.8%

Source: Aberdeen Group, October 2006



Best-in-class firms were also most likely to see improvements in the key metrics mentioned above in the last two years (Table 6). With respect to key financial metrics, 86% of best-in-class firms state they have seen increases in their service profitability, compared to 35% of laggards. Specifically with regards to field service, 68% of best-in-class firms state they have seen a drop in their technician travel times while compared to just 3% of laggards.

Table 6: Best-in-Class Move in the Right Direction

	Metric	% of Respondents Reporting Change in Each Class		
		Laggards	Industry Average	Best in Class
INCREASE	Average daily work orders completed per technician	28%	41%	83%
	Customer satisfaction index	47%	49%	74%
	First-call/visit resolution rate	23%	41%	66%
	Service profitability	35%	29%	86%
	Service revenues	34%	42%	74%
	Serviceable asset uptime	12%	25%	57%
DECREASE	Mean time to repair	9%	22%	51%
	Travel time (on the job)	3%	37%	68%

Source: Aberdeen Group, October 2006

Strategic Field Service Maps to Performance

With best-in-class firms clearly outperforming laggards in terms of key performance metrics – it is vital to map out the performance gains from a strategic field service management approach.

Best-in-class are tops in coordinating the four pillars on either a real-time or daily basis. Indeed, 37% of best-in-class firms stated that they execute service activities through shared organizational knowledge while reconciling operational, financial, and customer order statuses in real-time. Only 18% of all other firms stated this kind of real-time organizational focus. With real-time system integration being a key pain point for LBS adoption – it is vital to note that best-in-class companies are almost two times more likely to have real-time integration and flow of data within their overall field service and enterprise systems.

From the point of view of organizational support for mobile field service, fully 89% of best-in-class firms indicated that they have either director or vice-president oversight for field service profit and loss, cost cutting, and productivity targets. By comparison, 70% of all other firms and 65% of laggards indicated having the same level of organizational



oversight. In essence, the remaining 35% of laggards indicate that they have no discrete management or P&L for service. These companies view their service chain purely as a cost of doing business.

The value of process and organizational support around field service directly adds to field service problem resolution rates and overall service profitability – as seen from best-in-class performance. Two of the main pillars, even when taken in isolation, have a positive effect on key metrics mentioned throughout the report (Table 7).

Table 7: Strategic Maps to Field Service Success

Process	Average Result
Execute work orders through <i>shared or-organizational</i> knowledge, reconcile operational, financial, and customer status with system of record in <i>real-time</i> .	Work orders per day per field technician – 4.1 Service profitability (% of revenues) – 17.0%
Execute work orders through <i>individual worker's</i> knowledge, reconcile operational, financial and customer status with system of record <i>every few days</i> .	Work orders per day per field technician – 3.8 Service profitability (% of revenues) – 12.8%

Organizational Support	Average Result
Vice-president or director level oversight for P&L and cost-cutting	Work orders per day per field technician – 4.2 Service profitability (% of revenues) – 16.5%
Service is viewed purely as cost , and there is no discrete management or P&L for service chain operations	Work orders per day per field technician – 3.7 Service profitability – 8.1%

Source: Aberdeen Group, October 2006

Case Study: The Keystone Service Division of Maax

The Keystone service division of **Maax**, a provider of bathroom/spa appliances and flooring for home builders, reports more than \$14 million in annual installation revenue in the U.S. Keystone is a significant service provider in the North East and Mid-Atlantic states.

The general manager of the service division was looking to equip his 60-strong service force with GPS-enabled handhelds that were integrated with back-office systems, and as such, purchased a mobile business process solution with workforce/scheduling and dispatch functionality. The main reasons for the purchase were 1) to improve scheduling and routing of the field force, 2) to improve connectivity and enable technicians and back office personnel to have real-time access to the work order, customer, and asset-centric data, 3) to be able to track technicians in times of emergencies, and 4) to allow for tracking and reference for resolution of customer disputes.



The GPS devices used by the Keystone technicians also have barcode scanning capabilities enabling them to scan work orders and parts labels, allow for efficient real-time tracking of all fleet assets. With connectivity to the back-office, Keystone's 60 installers are able to track the status of its 300 daily installations in real-time. In addition, with little effort they can now document the truck used and service route they are to perform each day. The system captures drive time as well as time spent on each job site. Once on site, the field service worker documents if the project was completed or not and why. This information is instantly transmitted to Keystone which can contact builders and reschedule installations if needed. It also allows Keystone, to update service schedules for the following day as needed, making the team more productive and responsive to customer needs.

To monitor the performance of his technicians with the new equipment, the general manager does a weekly review of an overall service P&L. In addition, real-time data and KPI availability let him pull relevant KPIs when and if they are needed. With this approach, the service division has seen significant reductions in the cost of people as well as vehicle maintenance and fuel costs. The manager has seen an average reduction in distance driven by each contractor of approximately 15 miles per week. In addition, the integration of parts has enabled the company to equip its technicians with the right parts at the required time, therefore further reducing the chance of customer dissatisfaction.

Measuring and Sharing the Value of LBS

Within the strategic service framework in support of LBS, best-in-class firms actively measure the effect of their technology deployments with key metrics that fall in two buckets:

1- Customer-facing metrics

These refer to metrics that directly affect the customer (i.e. asset-operator). Metrics include specific customer retention, first call resolution rates, and mean time to repair. Longer resolution and repair times generally affect asset uptime which can be a critical satisfaction driver especially with users of critical devices such as medical/industrial equipment.

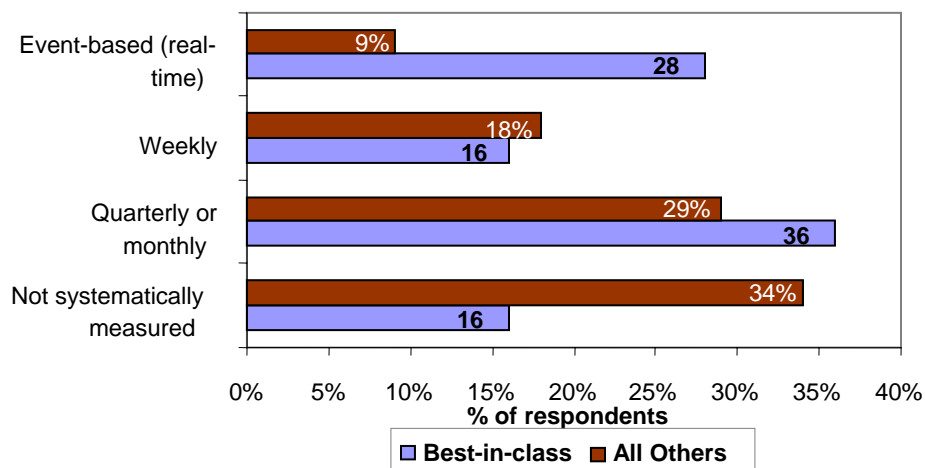
2- Internal operational and financial metrics

Metrics like invoice time, fuel/insurance costs that directly add to overarching service revenue, cost and profitability numbers.

A previous Aberdeen research effort recorded that best-in-class firms were the most likely to measure the work of their field service personnel in real-time. These measurements encompass the effect of their enhanced location intelligence on both sets of metrics described above. Amongst other firms, nearly 34% of firms indicated that they did not systematically measure service chain related data (Figure 6).



Figure 6: Real-time Data Access Levels



Source: Aberdeen Group, September 2004

With the new treasure of readily available data provided by the real-time access benefits of location intelligence, it is also essential that this data not only be used for customer service initiatives but also by other value chain counterparts such as product design, marketing and sales. Field technicians with up-to-date information on customer buying patterns and tendencies can leverage this information to enhance cross-sell and up-sell opportunities. Likewise, location data of service event probabilities can enable other teams such as design and marketing to tweak their offerings in order to enhance their response to customer demand. Only 34% of all respondents currently report capturing point-of-service data and sharing it with other value chain counterparts. Best-in-class firms fared slightly better in this regard with 37% reporting systematic sharing. Given the low response rates, this represents a significant opportunity to enhance overall product offerings to better suit customer demands.

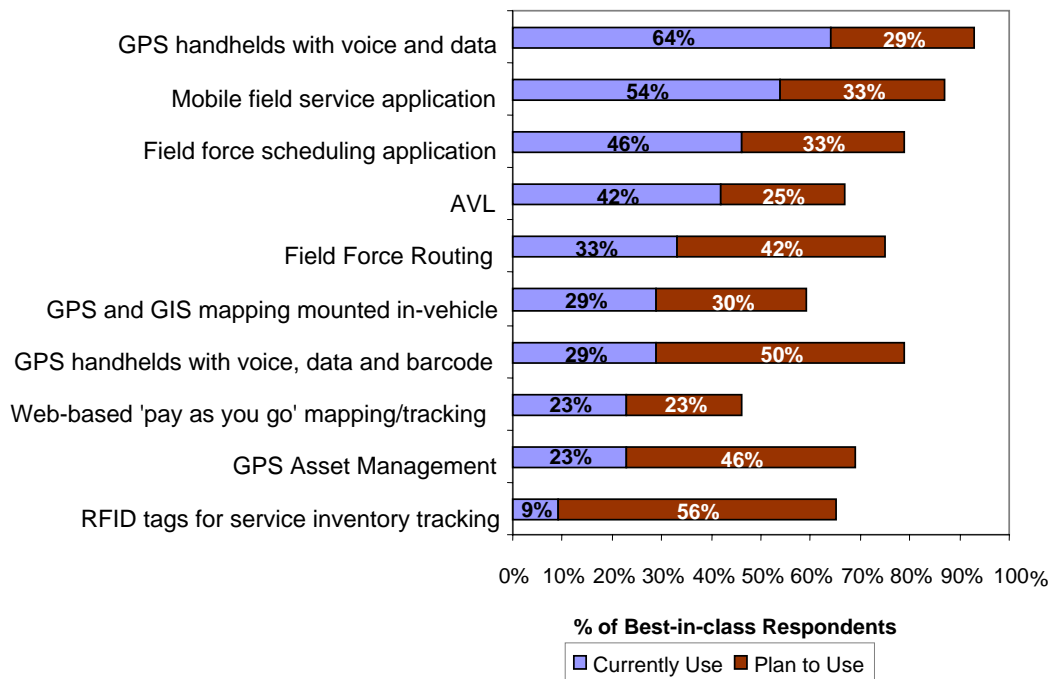
Technology Paves the Way

The final ingredient in the overall strategy around mobile field service is the technology. Technology in isolation – while effective in boosting results – can be leveraged to provide even greater returns when it is supported by best-in-class organizational strategy. As such, 83% of best-in-class firms use location-based solutions in their field service as compared to only 51% of laggards. Best-in-class firms though, due to their strategic support of their LBS investment, perform better in key areas when compared to firms that just adopt LBS technology as a solution (Table 5 vs. Table 3).

Given that, best-in-class usage (Figure 7) of LBS ranges from specific hardware devices to overall applications in support of these devices. 64% of best-in-class companies state that they use GPS or GIS enabled handset devices with voice and data communications. Only 51% of all other firms stated the same. To take it a step further, there was a larger discrepancy with the addition of barcode capabilities to the GPS handhelds. While 29% of best-in-class firms currently took advantage of this additional feature, only 11% of the rest of companies acknowledged the additional use of barcode scanning on GPS hand-

helds. Forty-six percent of best-in-class firms stated the use of a field force scheduling system which indicates the combination of GPS handhelds and scheduling technology by best-in-class firms to strengthen their overall routing and field force capabilities in order to effectively meet customer requests.

Figure 7: Field Service Technology Investments in Next 12-24 Months



Source: Aberdeen Group, October 2006

In terms of fleet management, a notable best-in-class standout was that 42% of top firms use Automatic Vehicle Location (AVL) compared to only 29% of all other suspects.

Current adoption of new entrants into the LBS field, such as web-based mapping and routing and RFID for spare parts, was generally low across the board. However, future plans for RFID usage deviated greatly between best-in-class and other participants. Fifty-six percent of top firms were looking to use RFID tags for service inventory tracking with only 29% of others stating the same. GPS handhelds with data, voice, and barcode capabilities also were a higher priority on the best-in-class shopping list.

The future usage plans of best-in-class with regard to RFID and scanners reflects their interest in optimizing, not only their scheduling and routing solutions, but also their proactive desire to integrate and optimize their service parts flow within their field service operations. This service parts optimization initiative maps back directly to one of the top drivers for LBS adoption amongst best-in-class firms.



Chapter Four: Recommendations for Action

Key Takeaways

- Identify your needs and match with the myriad of LBS solutions.
- Bring your employees on board – ensure that they are adequately trained and understand the capacity of enhanced field service technology.
- Increase senior-executive visibility into benefits from field service and LBS tools.
- Use the LBS data wealth for proactive service demand management and share the data with other value chain components such as sales, marketing and product design.

Cost, revenue, profitability, and customer satisfaction benefits await service organizations that are committed to optimizing their field service operations through location-based services.

Whether a company is trying to gradually move its field service organization from “Laggard” to “Industry Average,” or “Industry Average” to “Best in Class,” the following actions will help spur the necessary performance improvements:

Laggard Steps to Success

1- Identify what you need and what LBS can do for you.

There is no denying the benefits of the enhanced connectivity and improved data provided by LBS solutions. However, there are features of LBS that are more relevant for specific industries – depending on size or maturity. A small plumbing operation, for instance, might not need an entire workforce overhaul that is provided by an enterprise-wide system – especially if the need is to improve fleet asset/technician security. On the other hand, a larger fleet operator might require all the aspects of scheduling/routing with the added asset security provided by AVL and “GeoFencing.” It is vital therefore, to develop a strategic plan around the scope and timeline of specific LBS purchases.

2- Bring your employees on board.

A large percentage (54%) of respondents claim that they want to use LBS to monitor non-compliant employees. Employees might envision an LBS-enabled solution to be exactly that – a way for management to keep tabs on their whereabouts and activities. This distrust might block the efficient usage of LBS for its intended use. Therefore, it is essential for companies to fully describe the value of LBS to the specific employees who are most affected by it. Some organizations believe in tying technician compensation to improved customer resolution times or work order completion, which can be an effective way to increase technician interest in the value of LBS.

3- Identify and target integration issues in field service technology purchases.

Data provided by LBS can be a boon if there are systems in place to adequately collect and present the data in a form that is useful for the purpose at hand. While efficient routing and scheduling might assist greatly in getting your technicians to the



right spot - the point of service data may not be valuable if it is not easily transferred to back-office systems that might ultimately be tapped for customer/asset data history. Proper connectivity to all enterprise wide systems can also add to the value of LBS (e.g. Connection to finance/billing systems can shave of valuable time on invoicing or work order processing.)

4-LBS is more than just a breadcrumb display

While location intelligence is beneficial for employee monitoring and resolution of disputes, it can also be used for purposes that can strengthen overall service reputation, quality, and customer satisfaction. Even for companies that might not be looking for a significant overhaul with investments in enterprise-wide mobile or scheduling systems, there are various LBS-enabled devices that can assist these companies in taking steps toward the use of location intelligence to get in front of customer problems. Web-based mapping/routing, pay as you go systems, and monthly per user setups are just some examples of flexible opportunities that provide LBS benefits to organizations with limited financial resources and flexibility.

Industry Average Steps to Success

5- Increase senior-executive visibility into LBS benefits.

LBS solutions have a positive affect on P&Ls – which is always a win with senior executives. A number of companies interviewed by Aberdeen stated that a major issue with LBS adoption or upgrade was the lack of internal support from upper management. 40% of respondents claim that lack of IT resources are a major barrier to adoption of LBS and field service technology. Having an executive champion for LBS can be vital in transfer of IT budgets towards LBS. Executive champions can be won over through constant knowledge of LBS value – to end customers as well as to overall P&L.

At an industrial equipment company that Aberdeen interviewed, the managers attributed the success of their field service operation in large part to the enhanced accountability and ownership assumed by stakeholders throughout the service operation. With field service personnel taking ownership for the success of the initiative, the company was able to gain and sustain the necessary enterprise-wide buy-in to successfully transform its field service organization from a regional to national business in less than two years.

6-Foster a corporate culture and business processes oriented around client satisfaction.

While LBS enhancements to service revenues and profitability are key, there needs to be an emphasis on the value that LBS can have on the end-user or asset-operator. Customer satisfaction from a quicker service turnaround can add not only to renewals from that particular customer, as evidenced by higher retention rates, but also in added business from increased purchases or word of mouth referrals. In essence the value of customer satisfaction can be computed based on absolute service revenues as well as service revenue enhancements from revenue recapture and revenue creation.

7- Training of employees is key to field service automation/LBS adoption.



More than a third of respondents state that inexperience with enhanced field service or LBS technology was a top barrier to purchase. Proactive training into the use and value of these solutions can play a key role in ease of adoption as well as efficient use of LBS tools for their intended use.

Take **Colorado Springs Utilities** for example. 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.

Best in Class Next Steps

8- Proactively monitor and fulfill customer requirements, versus waiting for breakages or outages to occur at the customer's site.

Respondents report that 52% of field service tasks are break/fix tasks representing a time window when critical assets are down and could lead to large losses for the end user. While LBS users display a lower percentage of break/fix tasks than non-users (47% vs. 57%) there is still a large percentage of tasks that can be proactively managed with the use of LBS technology. This can be attained by using the LBS data for proactive demand management for service needs. Knowledge of a particular geography that has a higher frequency of particular service requests can lead to stocking and staffing decisions that could further enhance the benefits of LBS and improve service response times.

9- Integrate other aspects of service chain under LBS capabilities.

Another tool to enhancing service response via LBS is to coordinate service parts management under the LBS umbrella. A technician on time is worth zero to a customer if he or she does not have the required parts to resolve the problem. 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 and parts within the entire service chain.

10- Share the LBS wealth with other value chain components.

As mentioned previously, LBS data can be used to predict future service demand and also affect future warehousing and other decisions with regard to service. If this data is made available throughout the organization, it can also be proactively used for future product design, product sales and/or marketing. Only 37% of best-in-class firms indicate that this data is systematically shared with other value chain counterparts when captured. This implies a large opportunity for best-in-class firms to use the collected asset or customer-centric data for non-service related initiatives to meet/exceed customer expectations.

11- Protect your customers' data.



Increased customer or asset-centric data also raises the need to secure this data as it is transmitted and stored – sometimes over numerous networks due to the reliance on a multitude of providers for a specific LBS solution. A service event followed by use-less spam (in the least) or other events can lead to dissatisfied customers – therefore negating the value of LBS.



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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

In October 2006, Aberdeen Group examined the mobile field service procedures, experiences, and intentions, especially with regards to Location-based services, of more than 250 enterprises in aerospace and defense (A&D), automotive, high-tech, industrial manufacturing, and other industries. The survey effort was supported by Directions Media, VertMarkets, Integrated Solutions and Mobile Enterprise Magazine.

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

- The degree to which mobile field service impacts corporate strategies, operations, and financial results
- The structure and effectiveness of existing mobile field service procedures
- Current and planned use of automation, specifically with regards to LBS to aid these activities
- The internal and external benefits, if any, that have been derived from location-based services in field service

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

The study aimed to identify emerging best practices in support of location-based mobile field service technology deployments and provide a framework by which readers could assess their capabilities as they relate to LBS solutions.

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, 43%; C-level executive, 15%; field service, customer satisfaction, procurement, information technology director, 10%; Senior/Executive Vice-President or Vice-President, 9%.
- **Industry:** The research sample included respondents a range of industries/sectors such as, Telecom/Utilities, 19%; High-tech/Medical Manufacturing, 19%; Construction, 13%; Consumer Facing Industries, 13%; Public Sector/Government, 10%; Industrial Manufacturing, 4%; Aerospace and Defense, 2%.
- **Geography:** 70% of survey respondents were from North America. The remaining respondents were from EMEA, 18%; APAC region, 9%; South/Central America and Caribbean, 3%.
- **Company size:** About 14% 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 57% of respondents were from small businesses (annual revenues of \$50 million or less).



Table 8: Competitive Framework

Competitive Framework Key
<p>The Aberdeen Competitive Framework defines enterprises as falling into one of the three following levels of FIELD SERVICES practices and performance:</p> <p><i>Laggards (30%)</i> — FIELD SERVICES practices that are significantly behind the average of the industry, and result in below average performance</p> <p><i>Industry norm (50%)</i> — FIELD SERVICES practices that represent the average or norm, and result in average industry performance.</p> <p><i>Best in class (20%)</i> — FIELD SERVICES practices that are the best currently being employed and significantly superior to the industry norm, and result in the top industry performance.</p>

Source: Aberdeen Group, October 2006



Appendix B: Related Aberdeen Research & Tools

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

- [*Best Practices in Mobile Field Service*](#) (June 2006)
- [*Mobile Field Service Solution Selection Report*](#) (December 2005)
- [*Field Service Optimization Benchmark Report II*](#) (May 2005)
- [*The Mobile Field Service Benchmark Report*](#) (September 2004)

Information on these and any other Aberdeen publications can be found at www.aberdeen.com or at www.chiefsofficer.com.

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