Aberdeen Group
A Harte-Hanks Company

Send to a Friend

Making Money via Mobile Field Services

July 2007

~ Underwritten in part, by~

DEXTERRA

MOBILEFRAME®

navtrak
Driving Business Productivity

Panasonic
TOUGHBOOK®

Sprint®
Together with NEXTEL

Aberdeen Group
A Harte-Hanks Company

Executive Summary

Aberdeen's research shows that field service organizations must deal with increasing customer demand for faster service resolution and escalating costs as top market pressures. To address both areas, Best-in-Class organizations are leveraging automation and mobile solutions to improve workforce productivity, capture more accurate information about service and equipment performance, and create complete links within the service delivery chain. These findings are drawn from a July, 2007 survey of more than 250 field service professionals.

Facilities Management Company

"Everything we do related to mobile technology is about two things: delivering service excellence to the customer and containing or reducing costs" -- IT Director Service Director

Best-in-Class Performance

Aberdeen used key performance criteria to distinguish Best-in-Class companies from all other organizations. These key performance indicators (KPIs) are the financial and operational metrics most frequently cited as indicators of balanced service improvement performance. Best-in-Class firms reported:

- 67% first call resolution
- 69% service level agreement compliance
- 18% service profitability as a percent of service revenue
- 5-hour average mean time to repair
- Technicians complete average 5 work orders per day

Competitive Maturity Assessment

Survey results show that Best-in-Class organizations shared several common characteristics:

- They are **71% more likely** than Laggard firms to regularly measure field service performance
- They are **twice as likely** as Laggard firms to update parts inventory based on usage (either daily or in real time)
- They are nearly **three times as likely** as Laggard firms to have implemented a service management solution;

Required Actions

In addition to the specific recommendations in Chapter 3 of this report, to achieve Best-in-Class performance, organizations must:

- Enable real-time, two-way data flow between all elements of service operations
- Ensure new technology solutions can integrate well with existing infrastructure
- Use data captured from mobile devices to feed real-time analytics and performance measurement systems

Aberdeen Group
A Harte-Hanks Company

Table of Contents

Figures

Tables

Aberdeen Group
A Harte-Hanks Company

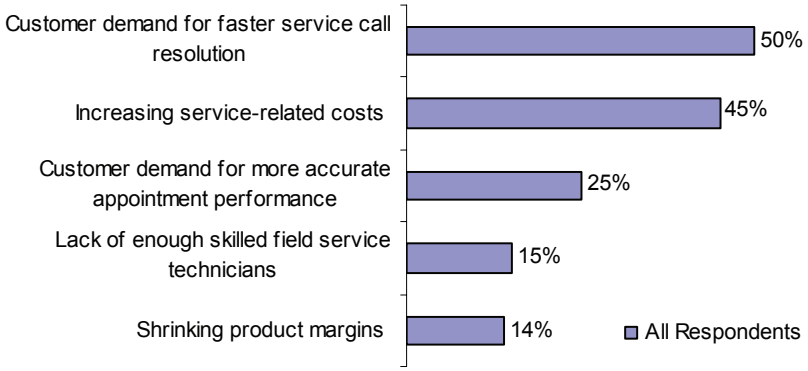
Chapter One: Benchmarking the Best-in-Class

Today's field service organizations are finding themselves caught between two critical and opposing pressure points. On one side, customers are demanding more responsive service, with expectations of shorter time to repair windows and tighter service level agreements. They are also beginning to require more accurate service appointment timing to minimize disruption and better manage their own operations – and they want repairs completed in one call whenever possible.

Causing equal pressure to service organizations is the need to control rising service expenses. Increasing fuel, vehicle maintenance, and labor costs continue to pressure service executives who are trying to deliver high levels of service at acceptable margins.

Aberdeen's latest research shows that cost containment and meeting increasing customer expectations remain the double-edged sword driving service executives to look for solutions to automate and increase the productivity of their service assets.

Figure 1: Key Pressures Driving Mobile Field Service Focus



Source: Aberdeen Group, July 2007

Maturity Class Framework

To deliver cost-effective service that meets customer expectations and delivers required levels of profitability, organizations must manage their workforce to achieve high levels of productivity and efficiency. Aberdeen used five key performance criteria related to meeting customer expectations and workforce productivity to distinguish Best-in-Class companies from Industry Average and Laggards. Table 1 summarizes Aberdeen's findings and defines Best-in-Class performance for this study.

Fast Facts

- √ Customer demand for faster service call resolution along with increasing service-related costs are the leading factors driving field service mobility solutions
- √ Field service mobility solutions are in place within **58%** of Best-in-Class companies, vs. **44%** in Average firms and only **31%** of Laggard firms
- √ Best-in-Class firms generate **three times** the profit margin (**18% versus 6%**) from service operations as Laggard firms

Aberdeen Group
A Harte-Hanks Company

Table 1: Top Performers Earn Best-in-Class Status

Definition of Maturity Class	Mean Class Performance
Best-in-Class: **Top 20%** of aggregate performance scorers	• **67%** first call resolution • **69%** service level agreement compliance • **18%** service profitability, as % of service revenue • Each technician completes an average of **5 work orders a day** • **Average** mean time to repair is **5** hours (from call to fix)
Industry Average: **Middle 50%** of aggregate performance scorers	• **61%** first call resolution • **56%** service level agreement compliance • **12%** service profitability as % of service revenue • Each technician completes an average of **3 work orders a day** • Average mean time to repair is **7** hours (from call to fix)
Laggard: **Bottom 30%** of aggregate performance scorers	• **38%** first call resolution • **36%** service level agreement compliance • **6%** service profitability as % of service revenue • Each technician completes an average of **2 work orders a day** • Average mean time to repair is **10** hours (from call to fix)

Source: Aberdeen Group, July 2007

Maturity Framework Key

The Aberdeen Maturity Framework defines enterprises as falling into one of the three following levels of practices and performance:

Best-in-Class (20%) — practices that are the best currently being employed and significantly superior to the industry norm

Industry Average (50%) — practices that represent the average or norm

Laggards (30%) —practices that are significantly behind the average of the industry

Best-in-Class PACE Model

Achieving Best-in-Class performance against the increasing pressure for more efficient and more profitable service, as shown in Table 1, requires a combination of strategic actions, organizational capabilities, and enabling technologies that can be summarized as follows:

Table 2: Best-in-Class Pace Framework

Pressures	Actions	Capabilities	Enablers
Increasing service-related costs, including workforce, fuel, parts, and fleet	Replace paper-based work order system with automated workflow from dispatch to technician	Regular periodic measurement of field service performance	Best of breed service management system
Customer demand for faster service call resolution	Provide technicians with real-time job-related information	Asset status information can be captured by service technicians and downloaded automatically to central system	Customer Relationship Management (CRM) system

Pressures	Actions	Capabilities	Enablers
	Capture proof of service through signature or voice confirmation	Ability to update parts inventory based on field usage, either daily or in real-time	Mobile field service system for work order management
		Ability to integrate real-time customer and product service information into service analytics system	Mobile field service system for scheduling and routing
			Global Positioning System (GPS) and Advanced Vehicle Location (AVL) for fleet and/or asset tracking

Source: Aberdeen Group, July 2007

The Best-in-Class actions in Table 2 show that top performing organizations place a high value on automating field service systems and enabling two-way real-time communication between mobile technicians and headquarters locations They also maintain the ability to integrate information into a common analytic platform to provide an enterprise view of service performance.

Aberdeen Group
A Harte-Hanks Company

PACE Key — For a More Detailed Description See Appendix A

Aberdeen applies a methodology to benchmark research that evaluates the business pressures, actions, capabilities, and enablers (PACE) that indicate corporate behavior in specific business processes. These terms are defined as follows:

Pressures — external forces that impact an organization's market position, competitiveness, or business operations

Actions — the strategic approaches that an organization takes in response to industry pressures

Capabilities — the business process competencies required to execute corporate strategy

Enablers — the key functionality of technology solutions required to support the organization's enabling business practices

To reach Best-in-Class performance, firms are taking strategic action to improve accuracy and timeliness of data flow between mobile technicians and support staff. For example, Best-in-Class firms are automating the regular bi-directional workflow between dispatch centers and service technicians in the field. Eliminating inefficient paper work order systems saves time and improves accuracy of information across the dispatch to technician link. Providing service technicians with real-time job-related information, another top strategy for 31% of Best-in-Class companies, can improve first-time fix rates by giving the technician visibility into what parts may be required and what customer requirements may be in place that impact service calls. Best-in-class companies are also using mobile technology to perform the basic functions of service technician location tracking as well as allowing the technician to capture proof of service delivery in real time.

Aberdeen Insights – Strategy

The collective strategies employed by Best-in-Class service organizations indicate a need to ensure that the field technician, often the last link in the service delivery process, has access to all critical information at the time it is needed. They also point to a desire to create an automated "closed loop" between headquarters operations and technicians in the field, by pushing schedules, work orders and asset, customer, and part information to technicians and allowing techs to close and verify complete calls via mobile devices at the time of service. Automating processes is not only about increasing field tech productivity. Ensuring more accurate data capture streamlines back-office workflow, eliminates redundant data entry, and provides a stronger base for performance analytics.

Aberdeen Group
A Harte-Hanks Company

Chapter Two: Benchmarking Requirements for Success

Field service organizations generate significant benefits from automation and mobile technology strategies when those strategies become part of an organization's core capabilities.

Case Study: The Lower Colorado River Authority

The Lower Colorado River Authority (LCRA) is a broad-based utility enterprise in central Texas that delivers electricity, manages the water supply and the environment of the Lower Colorado River Basin. It also develops water and wastewater utilities, provides public recreation areas, and supports community and economic development. For years, it relied on inefficient paper-based systems to manage field meter readings, equipment condition monitoring, maintenance work orders, parts inventory usage, and equipment audits. "Paper forms held data critical to speeding repairs, optimizing field staff schedules and tracking tools and replacement parts," said Clay Cook, CMMS Manager at LCRA.

Paper forms and manual systems also were creating challenges for LCRA in the area of managing regulatory compliance. Explains Cook, "We have over 400 nuclear devices that require semi-annual reporting and quarterly audits. Each device has 10-12 audit points. Trying to efficiently do those audits and maintain accurate records over time became extremely time-consuming when using spreadsheets and paper forms."

The solution for LCRA was a mobile system linked to a comprehensive asset management solution. Field technicians now use hand-held ruggedized devices to capture critical asset and parts information and feed the information to one central back-end system to ensure data accuracy. Work crews can use the devices to download work orders at the start of each week, can receive updates over the network as required, and can report back when work has been completed. The system has improved work order management, field asset audit capability, and replacement part and tool inventory tracking. In addition, it has provided LCRA with the ability to meet its goal of moving to more preventive and less reactive maintenance work.

Since implementing the mobile field service/maintenance solution, LCRA has experienced a 20% improvement in the quantity of completed work, has significantly increased the amount of planned versus reactive work completed, and has improved its government-mandated reporting activities.

Fast Facts

The Best-in-Class are:

- √ 79% more likely than Laggard firms to use a mobile solution for scheduling and routing
- √ 70% more likely than Laggards to manage work orders with a mobile solution
- √ 71% more likely than Laggards to regularly measure field service performance
- √ Nearly twice as likely as Laggards to tie field technician compensation to work order completion, first time fix or performance based metric.

Competitive Assessment

The aggregated performance of surveyed companies determined whether they ranked as Best-in-Class, Industry Average, or Laggard. In addition to having common performance levels, each class also shared characteristics in five key categories: (1) process (the ability to maintain efficient workflow across key areas of operation); (2) organization (the ability to establish the right level of executive management and interaction); (3) knowledge management (the ability to integrate data streams into

analytic systems for decision support); (4) technology (the selection of appropriate tools and intelligent deployment of those tools); and (5) performance measurement (the ability of the organization to measure its service improvement efforts and adjust accordingly). These characteristics serve as a guideline for best practices and correlate directly with Best-in-Class performance across the key metrics.

Table 3: Competitive Framework

	Laggard	Industry Average	Best-in-Class
Process	Ability to update parts inventory based on field technician usage, either daily or in real-time		
	26%	**51%**	**53%**
Organization	Plan to implement senior executive accountability for field service performance including forecasting, planning and budgeting		
	34%	**37%**	**44%**
Knowledge	Ability to integrate real-time customer and product service information into service analytics system		
	34%	**34%**	**53%**
Technology	Field Service technology currently in place:		
	• **23%** best of breed service management system • **46%** CRM system • **33%** mobile solution for work order management • **29%** Mobile solution for scheduling and routing • **25%** GPS and AVL for fleet and/or asset tracking • **76%** spreadsheets	• **46%** best of breed service management system • **49%** CRM system • **44%** mobile solution for work order management • **34%** mobile solution for scheduling and routing • **35%** GPS and AVL for fleet and/or asset tracking • **64%** spreadsheets	• **64%** best of breed service management system • **56%** CRM system • **56%** mobile solution for work order management • **52%** mobile solution for scheduling and routing • **43%** GPS and AVL for fleet and/or asset tracking • **60%** spreadsheets
Performance	Ability to provide field service technician with personalized performance data in real-time		
	27%	**31%**	**50%**
	Regular periodic measurement of field service performance		
	42%	**54%**	**72%**

Source: Aberdeen Group, July 2007

Organizational Capabilities and Technology Enablers

These key process, organization, knowledge management, and technology enablers are the collective foundation that separates leading organizations from average counterparts and pays off in significant efficiency gains.

- **Process**
  Best-in-Class organizations were found in this survey to more frequently have formal business processes in place to maintain up-to-date inventory of spare parts, a critical component of delivering first-call service resolution. And while Industry Average companies are closing the gap between themselves and Best-in-Class in this area, Laggard companies remain far behind.

- **Organization**
  Senior executive oversight of service operations has been a common Best-in-Class practice according to Aberdeen research over the past two years. From the respondents to this study's survey it appears that Laggard and Average companies are beginning to close the gap on this Best-in-Class organizational best practice.

- **Knowledge Management**
  More than half of the leading service organizations have gone beyond capturing information in real-time. Best-in-Class firms integrate both customer-based and product service information into a larger service analytics system to provide a complete picture of service performance to all enterprise value chain members.

- **Technology**
  Best-in-Class organizations significantly outpace their Industry Average and Laggard counterparts in adoption of a comprehensive set of technology tools to aid service operations. From best of breed service management systems – where the Best-in-Class are almost three-times as likely as Laggards to have a system installed – to mobile solutions for scheduling and routing, work order management, and more advanced solutions to track assets and fleet vehicles, the top companies have demonstrated a commitment to technology to aid service automation. Best-in-Class companies are twice as likely as Laggards to maintain the real-time inventory status of critical spare parts. A small but significant 23% of the top firms are beginning to adopt RFID technology to track mobile assets. While the majority of firms still use spreadsheets for some aspects for service operations, use among Laggard firms is 27% higher than the Best-in-Class.

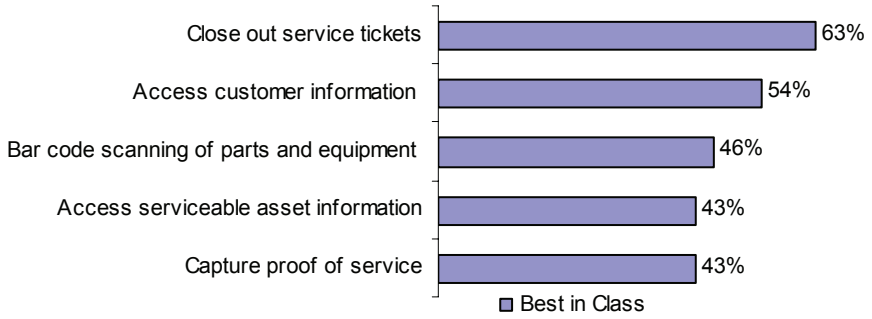
- **Performance**
  The leading best practice Regular measurement of field service performance is the strongest best practice identified by leading firms. Seventy-two percent of Best-in-Class firms perform periodic measurement of operations. In addition, 50% of Best-in-Class organizations are enabling their field service workforce to view their own personalized performance in real-time. This is a key differentiation for Best-in-Class versus their Industry Average and Laggard counterparts, and is a critical element of compensation plans that are tied to individual service performance, practiced by 40% of the Best-in-Class.

Filtrex

"Adopting mobile technology for improved information capture by our service technicians has given us the ability to provide our customers with more timely and significantly more accurate information about the condition and status of their installed equipment" – Patrick Griffith, Sales and Service Director

Best-in-Class organizations identified five key requirements mobile solutions had to address to be seriously considered as part of their service automation plans. As shown in Figure 2, these are very supportive of the effective two-way information flow that streamlines and automates key components of the service delivery process, providing the service technician with the information necessary to complete repairs and ensuring timely and accurate accounting of service performance in the field.

Figure 2: Functional Requirements of Mobile Solutions



Source: Aberdeen Group July, 2007

To address these functional requirements, service organizations looking to extend field service automation to mobile solutions identified key criteria they use to select mobile solutions as shown in Table 4. Beyond the integration requirement that supports a unified information platform linking service to other corporate systems, best-in-class place a high value on configurability and scalability of the application to address the changing dynamics of service operations. Real-time connectivity eliminates the need for a service technician to transfer service ticket and proof of service information in batches when a connection is available. Given the sensitivity of information collected by and passed to technicians in the field, security remains a strong consideration as well.

Table 4: Top Mobile Solution Selection Criteria of Best-in-Class Firms

Factor	Best-in-Class Ranking
Integration capability with related enterprise systems	**63%**
Real-time connectivity	**37%**
Security (ability to minimize potential loss of data and compromise the security of corporate networks)	**34%**
Configurability of solution	**31%**
Total cost of ownership	**29%**
Scalability of application	**29%**

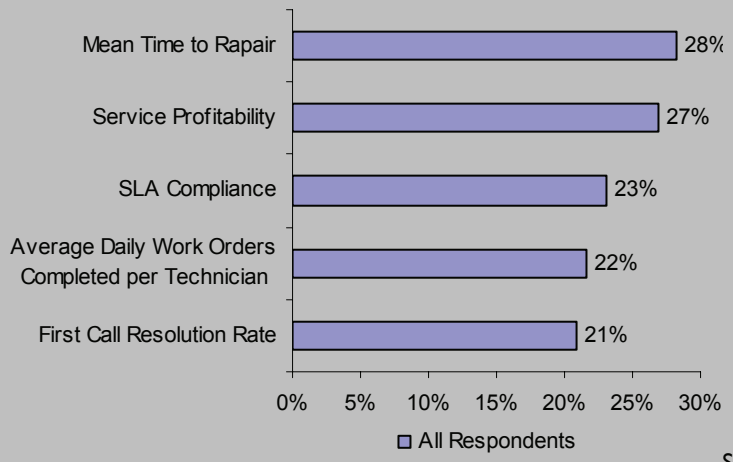
Source: Aberdeen Group, July 2007

Aberdeen Insights – Technology

Best-in-Class organizations in this survey are dramatically ahead of Industry Average and Laggard firms in deployment of service management systems and the use of mobility solutions to aid service performance in a number of important areas. The top firms are abandoning manual and inefficient spreadsheets in favor of connected automated systems. Best-in-Class use of service automation technology stands at 64% based on our survey, and these firms trail Laggards in use of manual spreadsheets by a significant margin. The Best-in-Class companies are also leveraging technology to create robust knowledge bases that merge asset, customer, and service performance data to maintain an ongoing real-time ability to measure and adjust service operations. The results, as seen by the numbers posted by these firms, indicate a payoff in both customer satisfaction and financial performance.

The chart below shows the overall improvement results posted by companies that have implemented mobile solutions. As it indicates, mobile solution adoption can produce positive impact regardless of overall company maturity level.

Figure 3: Improvement from Mobile Technology Deployment



Source: Aberdeen July, 2007

Aberdeen Group
A Harte-Hanks Company

Chapter Three: Required Actions

Whether an organization is trying to improve its workforce's productivity, internal efficiency, or customer-facing performance from "Laggard" to "Industry Average," or "Industry Average" to "Best-in-Class," the following actions will help spur the necessary performance improvements:

Laggards Steps to Success

- **Start measuring the things that count**

  According to survey results, 72% of Best-in-Class firms regularly measure field service performance. Conversely, as much as 30% of Laggard companies either don't know (or don't measure) how they are performing in key areas like service level agreement compliance, number of work orders completed per day by technician, and overall service profit contribution. Before embarking on any substantial mobility or automation initiative, it makes sense to install a measurement system to track performance against at least these basic KPIs. This should provide important benchmark information to use when evaluating the results of automation initiatives.

- **Move away from spreadsheets to more automated systems**

  Seventy-six percent of Laggard firms are still using manual spreadsheets as a key technology tool, which is much higher than Best-in-Class firms. While spreadsheets are more efficient than paper and whiteboards, service organizations stand to make significant and rapid improvements by replacing manual systems with even the most basic automation solution. For example, basic systems that automate the scheduling process can streamline dispatcher workload and better manage dynamic scheduling, resulting in significantly improved workforce productivity in the dispatch center and in the field.

- **Complete the people and parts connection**

  Effective and automatic field tech scheduling will not by itself result in improved first time fix rates, a key area for improvement among Laggard companies that generate only a 38% average performance in this important metric. Putting a service technician at a customer site within the contracted time does little good if he or she doesn't have the necessary part to perform the needed repair. Providing service technicians with access to up-to-date part availability and location information can avoid costly second call situations and improve both financial performance and customer satisfaction.

Industry Average Steps to Success

- **Use real-time product and customer information to provide a true view of service performance.**

  Survey responses show that only a third of Industry Average companies have the ability to blend product, service, and customer data into a service analytics system in real time. The number of Industry Average companies with this

capability matches Laggard companies, and is far below the 53% of Best-in-Class firms that use analytics based on real-time data. With service performance and customer satisfaction so closely linked, the ability to make solid decisions based on up-to-date information will remain a critical differentiator.

- **Provide field technicians with individualized performance information**

  Driving accountability for service performance to the field technician level is a best practice that top firms have been using successfully to improve productivity and profitability. The enabler is the ability to provide regularly updated personal performance information. When technicians have a real-time view of how they are doing against goals and expectations, they can make adjustments to their priorities, ensuring that activities are in line with overall organization goals.

- **Close the mobile technology gap**

  Best-in-Class organizations outpace Industry Average companies in use of mobile technology in key strategic areas like scheduling and routing, work order management, service delivery validation, fleet management and asset tracking and performance monitoring. ***From the improvements cited by all companies (see Technology Insights), mobile solution implementation will produce strong results in the areas of customer expectation compliance, workforce productivity and financial performance.***

Best-in-Class Steps to Success

- **Tie field service technician compensation to personal service performance**

  According to survey respondents, 40% of Best-in-Class companies tie some form of compensation to field technician's work order or first-time fix performance level. While this is a good start, the majority of even Best-in-Class companies fail to make the critical link between performance and compensation. With the edge Best-in-Class firms have in their ability to deliver personalized performance data to technicians, completing this connection is a logical and effective differentiator.

- **Leverage mobility solutions for advanced capabilities**

  Given the investment and demonstrated value of mobile solutions for scheduling and routing and work order management, a logical best practice to maintain a competitive edge would be to extend the use of mobile solutions to areas like asset tracking, remote product monitoring and asset status reporting and advanced fleet management. While implementation of a total machine-to-machine monitoring system to manage predictive service may be some time away from mainstream adoption, field technicians equipped with mobile technology can help bridge the gap.

- **Accelerate adoption of RFID and other technologies for remote asset tracking**

More and more service organizations are called on to service and repair disbursed assets. According to survey respondents, the Best-in-Class firms that have adopted this technology (at 23% overall) hold a strong edge versus the Industry Average firms (9%) and Laggard firms (0%) with this technology in place. While all maturity classes claim to be evaluating the technology, the current Best-in-Class companies seem well positioned – especially with their lead in establishing the back-office systems necessary to more fully utilize the technology – to use this as a competitive edge.

Aberdeen Insights – Summary

Aberdeen's research has shown that mobile solutions, as key extensions of field service automation efforts, have proven effective in improving workforce productivity and service delivery accuracy. Whether it's giving technicians access to critical service data when needed, tracking technician and vehicle location to better schedule service calls, or enabling more accurate and timely data capture on asset status and service call resolution, the benefits of these solutions (when properly implemented) are real and significant. The continuing improvement in the reliability, usability, and cost performance of mobile hardware, more integrated mobile applications, and faster mobile networks with broader coverage areas all support the further implementation of mobility solutions as a key strategy in strategic service management.

Send to a Friend

Aberdeen Group
A Harte-Hanks Company

Appendix A:
Research Methodology

In June and July of 2007, Aberdeen Group examined the field service strategies, capabilities, and related technologies of over 250 companies. Responding executives completed an online survey that included questions designed to determine the following:

- The degree to which automation and mobility strategies and capabilities are deployed across the field service operation
- The structure and effectiveness of existing strategies, policies, and procedures
- The current and planned use of mobility and other advanced technologies
- The benefits achieved by organizations by the adoption of best practices prevalent across all enterprises

Aberdeen supplemented this online survey effort with telephone interviews with select survey respondents, gathering additional information on field service capabilities, technologies, real-time integration strategies, experiences, and results.

Responding enterprises included the following:

- **Job title/function:** The research sample included respondents with the following job titles: CxO or President (20%); Vice-President (7%); Director (15%); Manager (30%), Staff (7%), Consultant (14%), other (6%).
- **Industry:** The research sample included respondents from different industries – Telecommunications equipment and services (26%); High Tech (21%); Manufacturing (14%); Computer equipment and peripherals (13%); Utilities (10%); Automotive (8%); Aerospace and Defense (7%); Other sectors responding included Chemicals, CPG, Paper, Plastics, Medical Devices, among others.
- **Geography:** The majority of respondents (60%) were from North America. Remaining respondents were from the Asia-Pacific region (17%), and Europe (19%). The remainder were from Latin America and Africa.
- **Company size:** About 26% of respondents were from large enterprises (annual revenues above US$1 billion); 32% from midsize enterprises (annual revenues between $50 million and $1 billion); and 42% of respondents were from small businesses (annual revenues of $50 million or less).

Aberdeen Group
A Harte-Hanks Company

Table 5: PACE Framework

PACE Key

Aberdeen applies a methodology to benchmark research that evaluates the business pressures, actions, capabilities, and enablers (PACE) that indicate corporate behavior in specific business processes. These terms are defined as follows:

Pressures **—** external forces that impact an organization's market position, competitiveness, or business operations (e.g., economic, political and regulatory, technology, changing customer preferences, competitive)

Actions **—** the strategic approaches that an organization takes in response to industry pressures (e.g., align the corporate business model to leverage industry opportunities, such as product/service strategy, target markets, financial strategy, go-to-market, and sales strategy)

Capabilities **—** the business process competencies required to execute corporate strategy (e.g., skilled people, brand, market positioning, viable products/services, ecosystem partners, financing)

Enablers **—** the key functionality of technology solutions required to support the organization's enabling business practices (e.g., development platform, applications, network connectivity, user interface, training and support, partner interfaces, data cleansing, and management)

Source: Aberdeen Group, July 2007

Table 6: Maturity Framework

Maturity Framework Key

The Aberdeen Maturity Framework defines enterprises as falling into one of the following three levels of practices and performance:

Best-in-Class (20%) **—**Asset Maintenance/Service initiatives that are currently being employed and significantly superior to the industry norm, and result in the top industry performance.

Industry norm (50%) **—** Asset Maintenance/Service initiatives that represent the average or norm, and result in average industry performance.

Laggards (30%) **—** Asset Maintenance/Service initiatives that are significantly behind the average of the industry, and result in below average performance

Source: Aberdeen Group, July 2007

Aberdeen Group
A Harte-Hanks Company

Table 7: Competitive Framework

Competitive Framework Key
Process **—** What is the scope of process standardization? What is the efficiency and effectiveness of this process?
Organization **—** How is your company currently organized to manage and optimize this particular process?
Knowledge **—** What visibility do you have into key data and intelligence required to manage this process?
Technology **—** What level of automation have you used to support this process? How is this automation integrated and aligned?
Performance **—** What do you measure? How frequently? What's your actual performance?

Source: Aberdeen Group, July 2007

Table 8: Relationship between PACE and Competitive Framework

PACE and Competitive Framework How They Interact
Aberdeen research indicates that companies that identify the most impactful pressures and take the most transformational and effective actions are most likely to achieve superior performance. The level of competitive performance that a company achieves is strongly determined by the PACE choices that they make and how well they execute.

Source: Aberdeen Group, July 2007

Aberdeen Group
A Harte-Hanks Company

Appendix B:
Related Aberdeen Research

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

- *Strategic Service Management*, May 2007
- *Service on Time: All the Time*, April 2007
- *The Mobile Field Service Benchmark: 2007 and Beyond*, December 2006
- Location. Location. Location. Does it matter in mobile field service, October, 2006
- *Remote Product Service Update*, November 2006

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

Author: Micky Long, Research Director, Service Chain Management, micky.long@aberdeen.com; Sumair Dutta, Research Analyst Service Chain Management, sumair.dutta@aberdeen.com

Aberdeen Group
A Harte-Hanks Company

Featured Underwriters

This research report was made possible, in part, with the financial support of our under-writers. These individuals and organizations share Aberdeen's vision of bringing fact based research to corporations worldwide at little or no cost. Underwriters have no editorial or research rights and the facts and analysis of this report remain an exclusive production and product of Aberdeen Group.

Dexterra is the fastest-growing mobile business software company worldwide. Using Dexterra, companies can assemble industry-specific mobile composite applications with a no-code toolset, adapt to process changes without extensive code rewrites, and implement a future-proof mobile platform that maps 100 percent to their business processes. Supporting Windows and Java technologies, the solution enables multiple security layers and integrates with the greatest number of enterprise back-office systems – all without disrupting companies' existing enterprise software environments.

For additional information on Dexterra:
21540 30th Drive SE Suite 230 Bothell, WA 98021
(800) 861-6951 or info@dexterra.com
www.dexterra.com

MobileFrame is the leading provider of Configurable Mobile Applications™ enterprise software that requires no programming to create and deploy custom field service mobile applications. With intelligent prioritized networking, synchronization and ODBC/OLEDB database integration built-in, MobileFrame's platform significantly streamlines mobile application development, deployment, and administration. Our pre-built Schedule, Dispatch and Work Order field service automation software can be easily customized without coding. MobileFrame eliminates custom programming through an intuitive, user friendly point-and-click graphical user interface, enabling customers to quickly create and deploy custom field service mobile applications tailored to their business. Learn more about our field service automation solutions at:

http://www.mobileframe.com/solutions/field_services.aspx

For additional information on MobileFrame:
111 West Saint John Street, Suite 900 San Jose, CA 95113
(408) 885-1200 or info@mobileframe.com
http://www.mobileframe.com/solutions/field_services.aspx

Driving Business Productivity

Navtrak provides GPS-based fleet management for businesses with mobile workforces. Navtrak's on-demand service is Driving Business Productivity™ for thousands of customers nationwide through real-time vehicle tracking, reporting and communication tools that increase operational efficiency cut costs and enhance customer service.

Navtrak's Datalogger® and Web Services tools empower field service dispatch and scheduling software with real-time GPS data. These mobile machine-to-machine data capture, transport and integration tools provide dispatch and service managers with visibility into actual field operations as they unfold -- enabling service optimization without unduly burdening field employees, requiring dispatchers to master additional software or requiring IT software support.

For additional information on Navtrak:
2000 Northwood Drive, Salisbury, MD 21801
(800) 787-2337
www.navtrak.net

For nearly 15 years, Panasonic has been the leader in mobile wireless computing technology. Today, Panasonic's rugged, reliable and wireless Toughbook® notebook PCs are the number one choice of field service providers. Toughbook PCs are not just durable laptops—they're total solutions that stand up to harsh environments and help you run your business with maximum uptime and productivity no matter where your job takes you. Toughbook notebook PCs are covered by a three-year limited warranty and offer an array of value-added and premium services to further guarantee uptime and better manage your Toughbook assets. Work anywhere. Risk nothing.

For additional information on Panasonic:
Panasonic Computer Solutions Company 3 Panasonic Way, 2F-5 Secaucus, NJ 07094
(800) 662-3547 option 7 or toughbookfieldservice@us.panasonic.com
www.panasonic.com/toughbook/fieldservice

Sprint Nextel offers a comprehensive range of wireless and wireline communications services bringing the freedom of mobility to consumers, businesses and government users. Sprint Nextel is widely recognized for developing, engineering and deploying innovative technologies, including two robust wireless networks serving more than 53.6 million customers at the end of the first quarter 2007; industry-leading mobile data services; instant national and international walkie-talkie capabilities; and a global Tier 1 Internet backbone. For more information, visit www.sprint.com.

For additional information on Sprint Nextel:
2001 Edmund Halley Drive, Reston, VA 20191
(703) 433-4000
www.sprint.com

THIS DOCUMENT IS FOR ELECTRONIC DELIVERY ONLY

The following acts are strictly prohibited:

- **Reproduction for Sale**
- **Transmittal via the Internet**

Terms and Conditions

Upon receipt of this electronic report, it is understood that the user will and must fully comply with the terms of purchase as stipulated in the Purchase Agreement signed by the user or by an authorized representative of the user's organization. Aberdeen has granted this client permission to post this report on its Web site.

All information contained in this report is current as of publication date. Information contained in this publication has been obtained from sources Aberdeen believes to be reliable, but is not warranted by the publisher. Opinions reflect judgment at the time of publication and are subject to change without notice.

Usage Tips

Report viewing in this PDF format offers several benefits:

- **Table of Contents:** A dynamic Table of Contents (TOC) helps you navigate through the report. Simply select "Show Bookmarks" from the "Windows" menu, or click on the bookmark icon (fourth icon from the left on the standard toolbar) to access this feature. The TOC is both expandable and collapsible; simply click on the plus sign to the left of the chapter titles listed in the TOC. This feature enables you to change your view of the TOC, depending on whether you would rather see an overview of the report or focus on any given chapter in greater depth.
- **Scroll Bar:** Another online navigation feature can be accessed from the scroll bar to the right of your document window. By dragging the scroll bar, you can easily navigate through the entire document page by page. If you continue to press the mouse button while dragging the scroll bar, Acrobat Reader will list each page number as you scroll. This feature is helpful if you are searching for a specific page reference.
- **Text-Based Searching:** The PDF format also offers online text-based searching capabilities. This can be a great asset if you are searching for references to a specific type of technology or any other elements within the report.
- **Reader Guide:** To further explore the benefits of the PDF file format, please consult the Reader Guide available from the Help menu.