



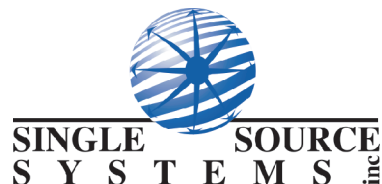
Aberdeen *Group*

Best Practices in Strategic Service Management

*Integrating the Service Chain to Drive Profits
and Competitive Advantage*

June 2005

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Executive Summary

Companies facing stiffening competitive pressures and inexorable product commoditization are turning to their aftermarket service operations to bolster operational efficiencies and drive top-line growth. As a result, post-sales service is evolving from a tactical cost center to a strategic profit center.

From among the forward-thinking companies that are embracing this evolution, Aberdeen has selected 10 “Best Practice” winners that exemplify the core tenets of Strategic Service Management (Table 1).

Table 1: Best Practices Winners and Their Solution Providers

Enterprise Winners	Solution Providers Used
Applied Biosystems	Axeda Systems
The Bobst Group	ei ³ Corporation
British Gas (Centrica)	Vidus Limited (an @Road Company)
First Service Networks	Siebel Systems
IR Hussmann Corporation	FieldCentrix
Komax Corporation	Single Source Systems
Roto-Rooter	Gearworks and NEXTEL
Tellabs	MCA Solutions and DHL Logistics
Triton Plc	CS Group – Pinnacle
Mid-size industrial equipment service company (name confidential)	Astea International

Source: Aberdeen Group, June 2005

The Strategic Service Management Framework

Until recently, even the best service organizations were tackling their service improvement initiatives in silos. That is, they typically zeroed in on what they perceived to be the ripest opportunities for improvement — better service parts planning, field technician scheduling, warranty/contract management, service order management, or mobile connectivity — and often stopped there.

In search of the next leap in performance improvement, leading companies are now porting learnings they have gathered in initial service optimization efforts to adjacent sections of the service chain. More to the point, best-in-class companies are leveraging



Internet, mobile, and M2M technologies to automate and better synchronize the four key pillars of service -- Process, People, Parts, and Data.

Implications & Analysis

“Best-in-class” companies Aberdeen interviewed have overcome countless challenges on their ways to establishing strategic service operations. They have distinguished themselves from “Average” and “Laggard” firms in five key categories:

1. Business processes;
2. Organizational structure;
3. Knowledge/data management;
4. Technology usage/integration; and
5. Performance management.

In this context, we offer a profile of a Best Practice company as it relates to strategic service management:

Process:

- Execute work activity by applying organizational expertise, updating work orders and contracts, and reconciling invoices in the field.
- Work schedules are optimized by considering all service orders against all constraints and total technician capacity — simultaneously.
- Trigger planned and unplanned service orders primarily based on data captured directly from the serviceable asset.
- Programmatic forecasting and planning of spares stocking levels and depot locations; leverage distributed stocking locations to meet customer expectations at lowest total service/inventory costs.

Organizational Structure:

- Vice president or higher-level executive oversees profit-and-loss (P&L) for service operations; service workers receive compensation incentives for achieving customer satisfaction targets.

Knowledge/Data Management:

- All stakeholders have on-demand or real-time access to the same inventory, contract, resolution, and other service-related data.

Technology:

- Primary technology solutions are schedule and route optimizers, mobile field service, service parts planning/logistics, and machine-to-machine (M2M)-enabled solutions.

Performance Management:

- Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first-call resolution rate, work orders completed per



technician per day) and customer-facing metrics (e.g., service revenue growth, customer retention, SLA compliance).

Best Practices & Recommendations for Action

The best-in-class companies Aberdeen interviewed for this report have each leveraged combinations of technology enablers, in conjunction with well-defined business processes, to achieve performance gains throughout the service chain.

Strategies that best practice winners identified as instrumental in their successes include:

1. Bring field service and parts logistics under one operational umbrella;
2. Leverage existing and new technology solutions to synchronize four service pillars;
3. Address process deficiencies before deploying technology;
4. Define requirements and success criteria clearly before evaluating technology solutions;
5. Leverage partnerships with service and logistics providers;
6. Attack aftermarket service as a top-line business opportunity;
7. Involve stakeholders early and often in transformational process;
8. Adopt a two-pronged approach to measuring the efficacy of after-market service: operational and strategic;
9. Adopt an enterprise-wide perspective; and
10. Invest more energy in forecasting and planning technician capacity and work order demand.



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Chapter One: Issues at Hand

Key Takeaways

- Sixty-one percent of companies polled in a recent Aberdeen study said field service is currently a strategic operation with revenue and profit goals in place; another 17% said field service, while not currently a strategic operation, would be so in the future.
- Key market pressures driving companies to invest time, money and resources in optimizing their aftermarket service operations are (1) a collective customer base that is expecting faster work order resolution; (2) shrinking product-based profit margins are spurring the need for service-based revenue growth; and (3) customer service has become a competitive trump card.

Revenue growth and profitability increasingly rest on the shoulders of post-sales service offerings and parts, particularly for companies in industries where first-run products have become commoditized, and product-based profit margins have slimmed over time. These companies are differentiating themselves from competitors based on their post-sales service value proposition. As such, keeping close tabs on service performance has become mission-critical for many companies.

Akin to the supply chain, a company's performance in delivering post-sales service to its customers depends on its ability to coordinate and optimize the supply of service at the lowest total cost, while meeting or exceeding the needs of customers for the most total revenue. The result: a profitable service operation that positively impacts overall corporate performance and shareholder value.

To effectively manage this "service chain," best-in-class companies must cost-effectively manage channel partners, third-party logistics providers (3PLs), contract technicians, and other third parties that often provide the service "supply," while deriving profitable revenue from the end-user enterprises that have purchased assets and service contracts and provide the service "demand."

PACE Key (for a 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 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



Market Pressures for Strategic Focus on Service

Long considered a tactical cost center, after-market service is fast becoming a strategic focus among enterprises in many industries. Sixty-one percent of companies polled in a recent Aberdeen study said field service is currently a strategic operation with revenue and profit goals in place; another 17% said field service, while not currently a strategic operation, would be so in the future.

Historically, original equipment manufacturers (OEMs) have serviced their products — either directly or through a third-party provider — on a reactive basis, responding to customer repair requests often after an outage or breakage has occurred. As such, enterprises have treated their field service organizations as a necessary cost of doing business.

Companies that provide repair, maintenance, and other field-based services can no longer afford to treat post-sales service and supply chain management as an afterthought. Aberdeen research indicates that after-sales service accounts for 10% to 40% of revenue for many industrial and service companies and up to 50% of inventory investment. Still, many firms servicing equipment, facilities, and other high-tech and industrial assets rely on outdated, inefficient processes for managing call logging and tracking, work scheduling, contract and warranty management, and service parts management.

Winning service organizations are proactively and predictively supporting their companies' products, often aided by field service and asset management automation technologies, and are collaborating with their customers to improve operational efficiencies, profitability, and customer satisfaction levels.

What market pressures are driving companies to elevate the importance of post-sales service in their corporate agendas? For best-in-class firms, the following influential factors stand out:

1. Customers are expecting faster resolution times:

Particularly in industries such as utilities, telecommunications and healthcare, in which customers require near-100% asset availability, the number one driver for field service optimization technology investments is speedy issue resolution. Fully 55% of best-in-class firms across all industries Aberdeen recently surveyed report this to be the case.

2. Shrinking product-based profit margins are spurring the need for service-based revenue growth:

Competition and other price pressures have eroded product-based profit margins in many industries, so leading firms are leaning on their service organizations for revenue growth. Firms of all maturity levels that have participated in recent studies agree that the increasing prominence of revenue targets for the service organization is drawing attention to service automation and improvement.

3. Customer service has become a competitive trump card:

Fully 80% of best-in-class firms say they are aiming to leverage superior customer service to edge out competitors. This mindset reflects a strategic understanding that in some industries, customer acquisition costs exceed customer retention costs by 15% or more, so higher levels of retention lead directly to more profitable revenue streams. Average and below average firms tend not to take such a strategic view of

customer service, so it follows that just 63% of these companies see customer service competition as a key driver of mobile field service initiatives.

4. Asset management responsibility and accountability are shifting from the end-user enterprise to OEMs and their service provider partners:

As companies increasingly narrow their focus on their true core competencies, they are assuming less of the responsibility for maintaining the physical assets and equipment they use in their businesses. This responsibility is moving to the shoulders of the companies who manufactured or sold the products. Half of best-in-class firms recently polled view this shift as an important driver of strategic service management and the adoption of pre-emptive asset management technologies like machine-to-machine (M2M) solutions.

With increasing pressure to retain existing customers and more of the revenue mix coming from services versus products, OEMs are looking to increase their visibility into and control over their deployed assets. For major manufacturers with thousands of assets to service, M2M becomes an attractive option for true real-time visibility and control.

Competitive Framework Key
The Aberdeen Competitive Framework defines enterprises as falling into one of three levels of practices and performance:
<i>Best in class (20%)</i> — practices are the best in use today and significantly superior to the industry norm
<i>Industry average (50%)</i> — practices represent the average or norm
<i>Laggards (30%)</i> — practices are significantly behind the industry average or norm

5. SLA/Warranty Compliance:

Contract compliance is another factor driving companies to optimize their service delivery operations. Meeting or exceeding service response times, service parts fill rates, asset availability, and other service contract terms is mission-critical for every service organization.

Companies that leave service provisioning to chance or manual processes risk incurring costly monetary penalties — and losing customers.

For instance, the service contracts that govern customer relationships for one security system provider Aberdeen interviewed require assets to be available and operating 99.5% of the time. For every percentage point below 98%, the provider loses 5% of service revenues.

To maintain this level of performance, this company must ensure that the technician with the appropriate skills and spares inventory is available at the right times for preventive maintenance and break/fix appointments.

6. Cost cuts require higher worker productivity:

Fully 84% of best-in-class companies say they are striving to do more with less, due to recent cost-cutting and resource reduction initiatives. And more work with fewer field workers is only achievable through waste reduction, increased productivity per worker, and lean business practices.



Chapter Two: Defining the Strategic Service Management Framework

Key Takeaways

- Companies that are committed to running service as a strategic business operation are broadening their processes and technology deployments to encompass the four pillars of service: Process, People, Parts, and Data.
- Insufficient forecasting and planning of service supply and demand, channel partner management, and performance measurement are the most formidable challenges to success in strategic service management.

In response to market dynamics and corporate mandates for profitability, service managers are retooling antiquated business processes and investing in new technology solutions to reach new levels in service operations performance and overall customer satisfaction.

Companies investing time and resources to improve their service operations have set clear objectives for these initiatives (Figure 1). Best-in-class companies that are taking a strategic approach to after-market service identified the following five objectives for their service improvement programs:

1. Improve competitive position:

In crowded markets with razor-thin product profit margins, companies are increasingly building their competitive strategies around their service offerings. Not surprisingly, 83% of leading companies indicate that field service optimization is core to improving competitive position.

One UK-based utilities company set out to edge out competitors by providing superior customer service to its 12 million gas customers and 6 million electricity customers. To consistently meet narrow service appointment windows promised to customers, this company decided to implement an optimization technology solution that assigns the most appropriate engineer from its 8,000-strong field force to each order.

Worker productivity and utilization are on the rise within the initial user group of 220 engineers, and the company anticipates a healthy competitive boost once all its engineers are on the system by the end of 2005.

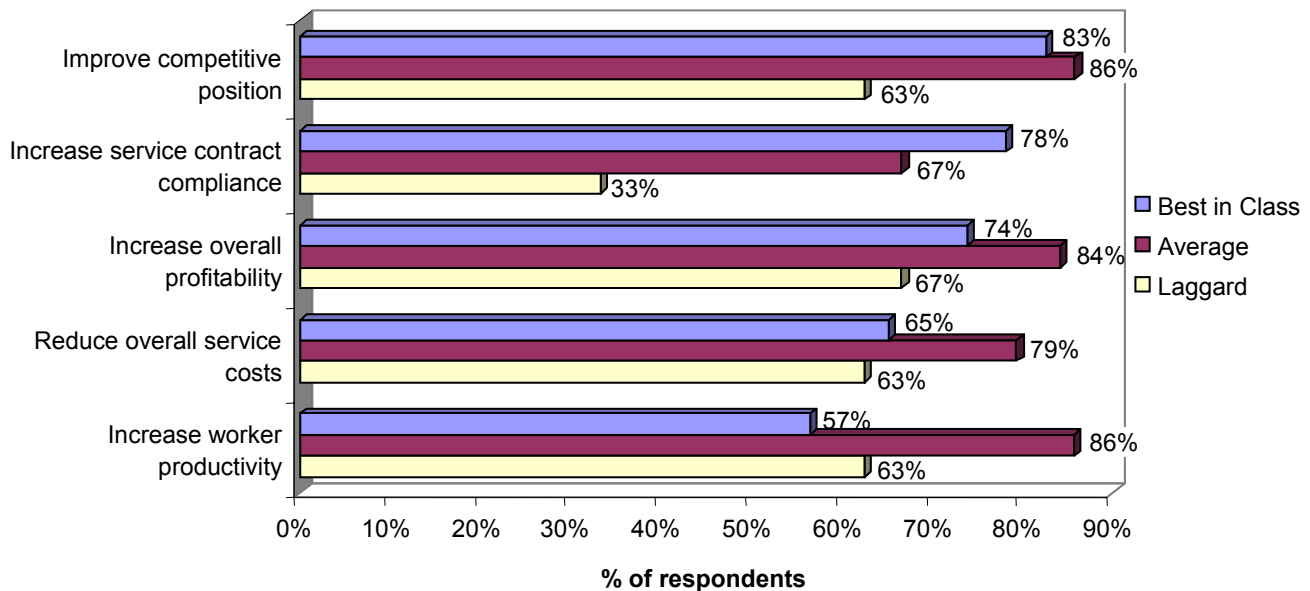
2. Build aggressive customer retention programs:

Almost three-quarters of best-in-class firms are leveraging M2M-enabled service solutions to achieve customer retention objectives. Service-oriented companies like Kodak Versamark (www.kodakversamark.com) have realized that the costs to acquire new customers in an increasingly competitive market far exceed the costs to retain an existing customer base.

Servicing more than 9,000 installations of high-speed, digital color printing solutions, Kodak Versamark measures the quality of customer relationships based on customers' overall productivity. To this end, Kodak leverages an M2M solution to locate

and remedy equipment problems before they negatively impact the user’s production capabilities. By analyzing data captured directly from its printing equipment, Kodak can often trigger a corrective action without ever deploying a field technician.

Figure 1: Strategic Objectives for Field Service Optimization



Source: Aberdeen Group, June 2005

3. Capitalize on cross- and up-sell opportunities for service:

Two-thirds of best-in-class companies are looking for ways to drive service-driven revenues with M2M-enabled service solutions. OEMs like Siemens (www.siemens.com) leverage M2M-enabled solutions to spur supplemental revenue streams with value-added services. Siemens has 200,000 medical systems and devices deployed worldwide, 70% of which are under active service contracts.

The company leverages the remote system management capabilities of its M2M solution to offer real-time equipment monitoring, over-the-air software distribution and upgrade, and remote repair services.

Indeed, as uncovered in our recent research, leading service organizations are not just cutting costs, they’re driving top-line growth. Coupled with mobile field service solutions, M2M solutions can generate more timely, accurate, and granular data on service and asset performance, so companies should leverage this data as value points to justify SLA price increases.



4. Adopt an integrated approach to service delivery that links the support chain with the supply chain:

Today's progressive value chain executives are striving to bring the post-sales service chain into closer alignment with the other phases of the product lifecycle. Design engineers, for instance, are collaborating with customer service executives to incorporate service requirements into the product design process. And procurement managers are participating in service parts planning and sourcing.

Today's progressive value chain executives are striving to bring the post-sales service chain into closer alignment with the other phases of the product lifecycle.

Nearly 60% of best-in-class firms consider M2M solutions to be a critical enabler of this deeply integrated approach to service delivery. Indeed, embedded intelligent devices can automatically transmit replacement part orders to OEMs, based upon predetermined forecasts or performance threshold triggers. Moreover, the proactive and preemptive service M2M made possible is extending the useful life of many assets, reducing the frequency of asset disposition and refurbishment.

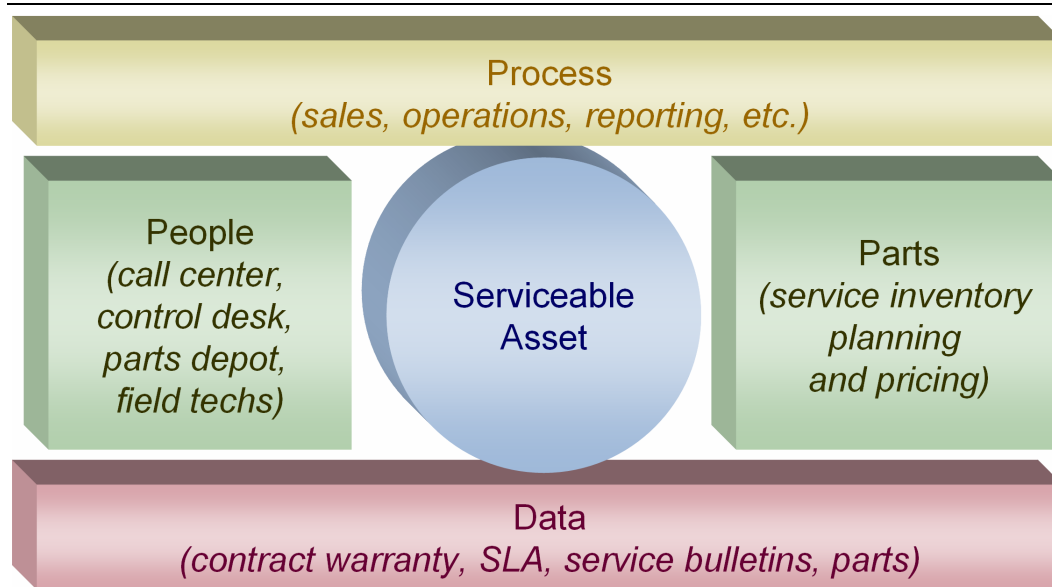
5. Increase overall profitability:

Customer-centric service organizations ultimately win market share, but cannot subsist for long without running profitable operations. Seventy-four percent of best-in-class companies optimize their field service operations as a means to increase overall profitability. Indeed, driving down service costs with increased worker productivity while retaining more customers and supporting premium service-based revenue streams constitutes an appealing recipe for healthy profits.

Pillars of Strategic Service Management

Until recently, even the best service organizations were tackling their service improvement initiatives in silos. That is, they typically zeroed in on what they perceived to be the ripest opportunities for improvement — better service parts planning, field technician scheduling, warranty/contract management, service order management, or mobile connectivity — and often stopped there.

Now, leading companies are porting learnings they have gathered in initial service optimization efforts to adjacent sections of the service chain, in search of the next leap in performance improvement. More to the point, best-in-class companies are leveraging Internet, mobile, and M2M technologies to automate and better synchronize the four key pillars of service: Process, People, Parts, and Data (Figure 2).

Figure 2: Four Pillars of Strategic Service Management

Source: Aberdeen Group, June 2005

Process

The best companies understand that no technology solution by itself can sustain long-term performance goals without sound business processes to back it up. Many of the companies Aberdeen interviewed for this report underwent significant service process reengineering initiatives in conjunction with technology deployments.

Case in point: Triton Plc, a UK-based manufacturer of domestic electric, power, and mixer showers, was able to change its business processes to achieve strategic operational goals. Triton decided to completely redesign its service processes to optimize productivity and customer satisfaction.

Triton partnered with CS Group – Pinnacle to reengineer all of its processes. No single process is the same today as it was five years ago, according to Graham Neve, Triton’s general manager of service. By realigning its service operation to maximize the impact of the technology, Triton realized expedient returns on its investment and eliminated costly latencies in its service operation.

Critical to Triton’s success has been its continual communication and negotiation with all departments and stakeholders throughout the project to ensure buy-in at all levels of the company. Through the development of the steering committee, Triton distributed ownership among employees and directly involved them in optimization efforts.

People

Leading firms are turning to field service “optimization” solutions, which allow for real-time alignment of technician aptitudes, availability, and proximity, as well as service parts availability, with changing work order requirements.



Gunning for reduced service costs, higher productivity, and increased profitability, these leading companies are taking steps to tightly align service demand, comprising the backlog and pipeline of work orders, with service supply, comprising technician capacity, proximity, aptitude, and inventory. The ultimate goal: Achieve the most cost-effective, productive, and profitable service chain at all times, in the face of myriad planned and unplanned constraints and interruptions.

To achieve this, best-in-class companies with high-volume service workloads and distributed field forces have found that field service optimization must occur in real-time. Therefore, this drive must be aided by technology solutions that can calculate optimal workload allocation amid unplanned service chain interruptions, based on pre-defined and prioritized constraints. Companies running truly optimized service schedules have, on average, improved work orders completed per day, per technician by 20%, service contract compliance by 25%, and increased wrench time by 18%.

Parts

By mapping spare parts inventory stocking levels to customer-, region-, and part-specific demand patterns, best-in-class companies are minimizing service inventory investments, increasing inventory turns, improving fill rates, reducing stockouts — all while improving profitability, bolstering overall brand strength, and increasing customer satisfaction.

Many of these companies are leveraging service parts planning solutions that have helped to deliver, on average, results such as 22% reduction in inventory levels and 90% and higher fill rates.

One high-technology manufacturer Aberdeen interviewed has more than 3,500 spare parts spread across 350 stocking locations around the world. It was able to shave off \$12 million in excess inventory and \$1.5 million in overall costs with the help of a codified service parts planning strategy and technology solution.

Forward-looking companies are layering on additional processes and technologies to address another critical profit lever: service parts pricing. These companies are reevaluating their service-part pricing strategy in the hopes of springing new revenue streams and contributing more to gross profit. In fact, 83% of companies Aberdeen surveyed reported that effective service parts pricing is important or extremely important to the financial health of their companies.

Data

Due to multiple inputs from and outputs to internal and external stakeholders, dynamic forces of supply and demand, and complex interdependencies with other segments of the enterprise and the value chain, even leading companies struggle with pinning down service performance information, goals, and measurement methodologies.

Some specific challenges enterprises are facing in their efforts to measure service performance include incorporating third-party firms and resources, gathering appropriate benchmarking data, and using insufficient performance indicators.

At Komax Corporation, a Swiss manufacturer of wire processing machines, technicians did not always have immediate access to service data while working at a customer site, so they were often unable to work productively in the field. In order to access service in-

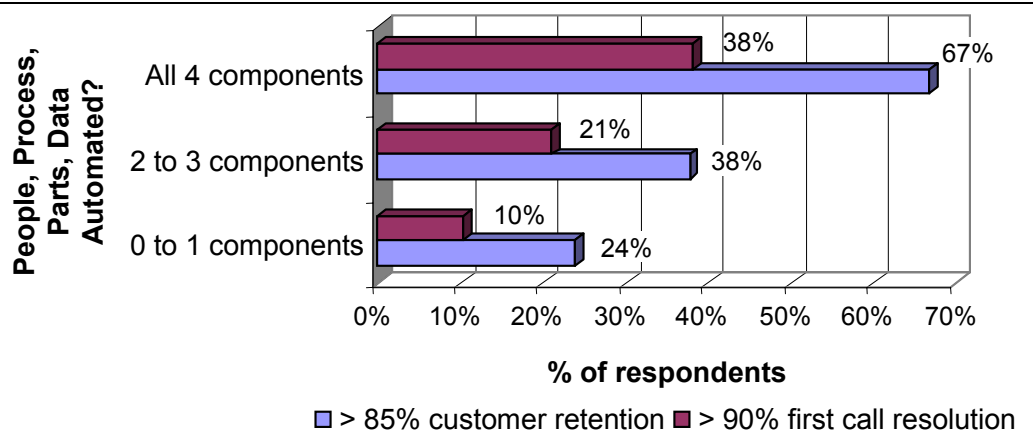
formation housed in Komax’s database, technicians first had to find a dial-up connection, which was often unavailable or provided extremely slow connectivity. As a result, technicians lacked the ability to access machine history on-site and transmit status data from a service visit back into the system in a timely manner.

As part of its solution, Komax laid out an enterprise-wide data management approach whereby customer, product, and service data would be normalized across billing, financial, service, and other business units and processes.

Four-Pronged Strategy

Companies that are committed to running service as a strategic business operation are broadening their processes and technology deployments to encompass all four of these areas. And these leading companies are beginning to reap the rewards on the top and bottom lines (Figure 3).

Figure 3: Holistic Service Approach Pays Off



Source: Aberdeen Group, June 2005

For most companies, the first point of intersection between the flow of service parts and field technicians is at the customer. An all-too-common problem arises when these two flows do not meet at the customer simultaneously, or at least in appropriate succession.

For one high-tech company, service contracts required field technicians to leave a customer’s site if the required service parts were not on the premises within 15 minutes of his/her arrival. The technician would then have to be re-dispatched.

Overall service performance is put at risk when a company overlooks this critical linkage between people and parts in the service chain. For instance, as many OEMs and service providers expand their geographical footprints, they must ensure that appropriately skilled service labor are in close proximity to customer sites and remote stocking locations. One U.S. start-up semiconductor company opportunistically chased business opportunities in Europe, and now is scrambling to cost-effectively deploy regional support personnel.



Obstacles to Strategic Service Management

Companies that we interviewed identified seven general factors that have contributed to their struggles with evolving their service organizations from a tactical cost center to a strategic profit center.

1. Insufficient foresight into service supply and demand:

Approximately 20% of companies Aberdeen surveyed reported that they do not forecast service workloads at all, and almost 40% indicated that they rely on spreadsheets for this purpose. On the supply side, almost 25% of companies said they do not plan technician capacity ahead of time, while 40% reported using spreadsheets for this task. Though a spreadsheet-based forecasting approach is better than none at all, it underserves the need for dynamic data manipulation and visibility in the service chain.

In a related Aberdeen study, more than 80% of respondents rated creating accurate plans and forecasts for spare parts consumption as a critical business challenge. The same proportion of polled companies cited spare parts inventory planning as a major stumbling block.

An accurate view into near- and long-term service workload and technician capacity is a critical supporting element for a cost-effective day-to-day field service schedule. Even the most sophisticated approach to prioritizing field service schedule constraints will fall short of optimal performance levels without preemptive forecasting and planning of both service supply and demand.

Patterns of planned service orders serve as critical input to calculating the optimal personnel and resources to assign to each order. Likewise, a forward-looking view into technician capacity and availability allows companies to proactively adjust to address demand fluctuations and to more accurately promise response times to customers.

Changes in business direction or activity — such as new market or geography entries or targeted sales and marketing campaigns — have a direct impact on service workloads. Companies must anticipate these events to effectively plan service personnel and resources to meet customer demand.

Likewise, on the supply side, service managers must stay on top of future technician availability, accounting for vacation time, training time, contingent resource plans, and the like in order to promise certain service levels to customers.

With up-to-date service demand forecasts and resource allocation plans in place, companies can effectively make day-to-day field service scheduling decisions, while understanding their impact on the bigger service chain picture.

With up-to-date service demand forecasts and resource allocation plans in place, companies can effectively make day-to-day field service scheduling decisions, while understanding their impact on the bigger service chain picture.

2. Incorporating third-party firms and resources:

OEMs often leverage contract service technicians, third-party logistics (3PL) or packaging providers, distribution partners, or other third-party firms to support certain elements of their service delivery processes.



For instance, more than half of enterprises Aberdeen interviewed utilize 3PLs or other third-party outfits to manage service parts stocking locations.

In the case of one billion-dollar consumer technology company, third parties are responsible for servicing 90% of the firm's 2,000 serviceable assets over the course of two to five years per asset, while the remaining 10% are serviced by an in-house field force.

To capture an accurate view of service performance, companies must integrate and collaborate with these external firms' systems and processes. If they do not complete this integration, they are risking dissatisfying or losing customers without any foreknowledge of problems.

Case in point: a billion-dollar materials handling equipment manufacturer was relying on its dealer network for selling and delivering service parts to its customers. Unforeseen performance problems at the dealers was reflecting poorly on the manufacturer and eroding customer satisfaction levels. In this instance, the manufacturer's solution was to implement a service parts management solution that provided visibility and traceability into its dealer-housed service parts inventory.

3. Gathering appropriate benchmarking data:

Service delivery processes and objectives vary dramatically by industry, business model, asset type, and even geography. Some service models are focused primarily on trimming service costs and increasing productivity, and therefore aim to minimize truck rolls wherever possible and maximize remote service and self-service processes. Others are focused on driving revenue growth, in which case each interaction with a customer represents a sales opportunity.

In some industries, e.g., healthcare and medical equipment, 100% asset uptime is critical, so repair windows are often measured in hours. In other industries, like consumer goods, asset availability is not as vital, so repair windows are often measured in days.

To benchmark themselves accurately, companies need to parse through the data that pertains to situations radically different from their own, and find sources of data that are relevant to their service organization's model, objectives, and processes.

4. Using insufficient performance indicators:

As mentioned previously, insufficient performance metrics plague service executives. By some estimates, there are 300 to 400 business metrics that apply to post-sales service performance. Selecting the appropriate combination of these data points to depict the most accurate view of service performance can be a daunting proposition.

Often, chosen service metrics are too narrow in scope. For instance, just one in five firms Aberdeen interviewed measure the enterprise-wide impact their products have on their customers' companies. In addition, companies often measure compliance with service level agreements or contracts, when they should be tracking customer retention.

In other cases, metrics are captured at insufficient time intervals. If a company analyzes work orders completed per day, first-time resolution rate, and service part fill rates on a quarterly basis, that may not be a granular enough lens to allow the company to identify opportunities for performance improvement.



5. Inadequate technology solutions:

Half of best-in-class companies in Aberdeen's survey indicated that insufficient deployment or integration of technology infrastructure represented a critical stumbling block en route to field service optimization. Common business practice at many companies is to convene the field force at a central location every morning and assign each technician that day's work orders, according to a static assessment of daily workload and technician availability.

Particularly in geographically dispersed service operations in which each technician handles multiple work orders per day, manual processes grossly underserve the need for timely analysis of supply and demand data. In many cases, outdated, underdeployed, or poorly integrated back-office or mobile field service solutions prevent companies from quickly accessing such data points as technician availability, location, skill sets, and spare parts stock. These variables directly impact service response time and costs, as well as customer satisfaction, so leaving them to chance is a risky proposition.

6. Misalignment of business requirements with technical capabilities:

Nearly 60% of best-in-class firms identified the leading challenge in embarking on M2M-enabled service and asset management initiatives to be the misalignment of business requirements with technical capabilities (Figure 4).

On the one hand, this misalignment can be largely attributed to poorly defined business requirements in the first place; in fact, 50% of best-in-class companies identified this as a major challenge unto itself. On the other hand, the mismatch between business requirements and M2M capabilities has a lot to do with the current fragmented nature of the M2M solution provider landscape.

Few, if any, M2M solution providers offer a complete end-to-end solution, covering the hardware, software, and connectivity requirements inherent in any M2M implementation.

7. Change management friction:

As with any process improvement initiative, one of the primary goals of service optimization is to improve worker productivity, which often means leveraging technology-enabled automation to accomplish more work with fewer resources. While it is a misconception that technology unilaterally precludes the need for skilled personnel, two key goals of most service optimization initiatives are to increase (1) the technician-to-dispatcher ratio — that is, use fewer dispatchers to manage greater numbers of technicians, and (2) the number of work orders completed per day, per technician.

As a result, service optimization and other improvement initiatives are often met with heated resistance, especially among unionized labor forces. Forty-two percent of best-in-class companies noted change management friction as a barrier to success. But the reality is that as companies increasingly run their service divisions as profit centers versus cost centers, field and back-office personnel will have increasingly critical roles in delivering value-added services and sustaining new service-based revenue models.

Chapter Three: Implications & Analysis

Key Takeaways

- Field service organizations with at least two years of mobile experience reported the following average performance improvements as a result of their mobile technology deployments: 31% increase in work orders completed per day; 34% increase in service revenues; and 33% improvement in Days Sales Outstanding (DSO).
- Companies that are running truly optimized service schedules have, on average, improved work orders completed per day, per technician by 20%, service contract compliance 25%, and increased wrench time 18%.

Best-in-class companies Aberdeen interviewed have overcome these and countless other challenges on their way to establishing strategic service operations. They have distinguished themselves from Average and Laggard firms in five key categories: business processes; organizational structure; knowledge/data management; technology usage/integration; and performance measurement (Table 2).

Table 2: Strategic Service Management Competitive Framework

	Laggards	Industry Average	Best in Class
Process	<ul style="list-style-type: none"> • Execute work activity in the field through worker knowledge; reconcile activity after the fact • Work schedules are fixed daily and manually adjudicated by dispatchers or schedulers • Trigger <i>planned</i> and <i>unplanned</i> service orders primarily based on verbal communication from customer • Limited to no forecasting or planning of spares stocking levels or depot locations; heavily reliant on safety stocks and expedited shipments to fulfill service level commitments. 	<ul style="list-style-type: none"> • Execute work activity in the field through worker knowledge; update work orders and do invoice reconciliation in the field • Work schedules are optimized one service order or one constraint at a time • Trigger planned service orders primarily based on customer and/or asset history; trigger unplanned service orders based on verbal communication from customer • Sporadic forecasting and planning of spares stocking levels and depot locations; use centralized distribution hub, channel partners, and safety stocks to fulfill service level commitments 	<ul style="list-style-type: none"> • Execute work activity by applying organizational expertise, updating work orders and contracts, and reconciling invoices in the field • Work schedules are optimized by considering all service orders against all constraints and total technician capacity simultaneously • Trigger <i>planned</i> and <i>unplanned</i> service orders primarily based on data captured directly from the serviceable asset • Programmatic forecasting and planning of spares stocking levels and depot locations; leverage distributed stocking locations to meet customer expectations at lowest total service/inventory costs



	Laggards	Industry Average	Best in Class
Organization	Service is viewed as purely cost, and there is no discrete management or P&L for service operations	Director-level executive oversees cost-cutting and productivity targets for service operations; corporate culture is based on customer satisfaction, but there are no customer satisfaction targets or incentives for service workers	Vice president or higher-level executive oversees profit-and-loss (P&L) for service operations; service workers receive compensation incentives for achieving customer satisfaction targets
Knowledge/ Data Management	No stakeholder (executives, call center, dispatch center, parts depot, field technician) has the most current and accurate view of inventory, contract, resolution, and other service-related data	Visibility into inventory, contract, resolution, and other service-related data declines in currency and accuracy while moving from call center to dispatch center to field technician	All stakeholders have on-demand or real-time access to the same inventory, contract, resolution, and other service-related data
Technology	Primary technology solution is spreadsheet-based	Primary technology solution is an ERP system and/or back-office service management system (SMS)	Primary technology solutions are schedule and route optimizers, mobile field service, service parts planning/logistics, and M2M-enabled solutions
Performance Measurement	Level of service optimization not systematically tracked and measured	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first-call resolution rate, work orders completed per technician per day)	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first-call resolution rate, work orders completed per technician per day) <i>and</i> customer-facing metrics (e.g., service revenue growth, customer retention, SLA compliance)

Source: Aberdeen Group, June 2005

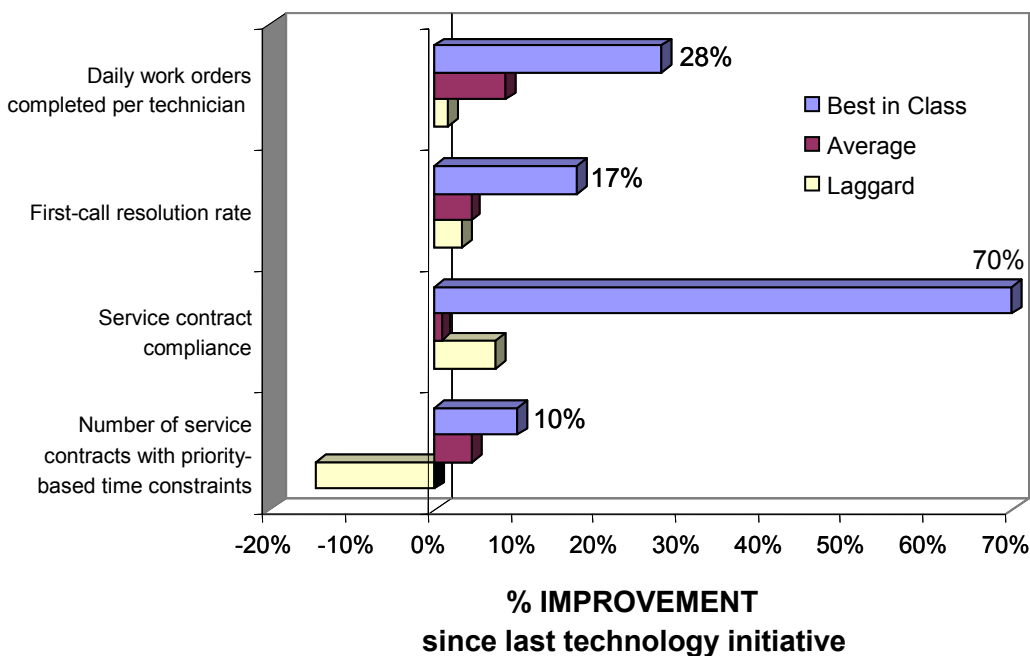
Leading companies Aberdeen interviewed have differentiated themselves not only in these five characteristics, but most importantly in top- and bottom-line performance. In any discussion of business performance, be sure to review what is being measured (i.e., key performance indicators, or KPIs) and the frequency of measurement. Often, companies might track the appropriate KPIs but at inappropriate or ineffective intervals. The top after-market service KPIs identified by best-in-class firms we interviewed are as follows:

- Average daily work orders completed per technician
- Average hours per technician per day spent working on customer sites (“wrench time”)
- Average travel time per work order (“windshield time”)
- First time part fill rate
- First-call resolution rate
- Machine down waiting part (MDWP)

- Mean time to repair (MTTR)
- On-time part delivery
- Percentage of work orders completed late
- Service contract compliance percentage
- Spare parts inventory turns
- Spare parts stock-outs/back-orders

For instance, in the area of field service optimization, recent survey results show that the firms exhibiting best-in-class characteristics and a successful track record with technology deployment and integration also enjoy best-in-class service and financial performance (Figure 4).

Figure 4: Field Service Optimization Maturity Maps to Performance



Source: Aberdeen Group, May 2005

Pressures, Actions, Capabilities, Enablers (PACE)

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 a company achieves is strongly determined by the PACE choices it makes and how well it executes.

All service organizations should examine their prioritized PACE selections and compare them to those of best-in-class companies to determine where they might make adjustments (Table 3).



**Table 3: Best-in-Class Strategic Service Management PACE
(Pressures, Actions, Capabilities, Enablers)**

Priority	Pressures	Actions	Capabilities	Enablers
1	Customers are expecting faster resolution times	Adopt an integrated approach to service delivery that links the service chain with the supply chain	Field service processes integrated with related business functions such as finance/accounting, CRM, logistics, and inventory management	Mobile and M2M communications software, hardware, and infrastructure
2	Shrinking profit margins, prompting focus on service for revenue growth	Capitalize on cross- and up-sell opportunities for service	Customer-service-centric organization	Warranty/contract management system
3	Customer SLA/warranty compliance	Increase service contract compliance	Visibility into service parts demand trends	Service parts planning and execution systems
4	Customer service becoming a competitive differentiator	Improve competitive position	Real-time alignment of technician supply and work order demand	Constraint-based schedule and routing optimization engine
5	Market shift from internal enterprise asset management to OEM-driven service delivery	Reduce overall service costs	Visibility into service parts inventory levels and locations	Back-office service management system (SMS) integrated with order management system
6	Cost cuts require higher worker productivity	Increase worker productivity	Systematic measurement of company performance against stated benchmarks and targets	Role-specific access to asset and customer data (e.g., health, history), and robust analytics and performance reporting functionality

Source: Aberdeen Group, June 2005

Technology Enablers: Strategic Service Management

The most progressive companies Aberdeen interviewed are leveraging existing technology experience and investments and are judiciously adding new functionality to address specific pain points in their service operations. To support their strategic vision for after-market service, the best companies are carefully planning and piloting integrations among critical systems — service parts inventory planning, field service scheduling, service order management, call center, financials, and contract management. Some of the building blocks of a complete service chain technology solution that focus on automating all four pillars of service are detailed below.



Service Parts Planning, Pricing, Execution

At average and lagging companies, spare parts management automation efforts are driven by two types of business systems: ERP and basic spreadsheet applications. ERP and materials requirements planning (MRP) systems can be useful for controlling inventory planning and execution within a discrete operating environment — such as a central stocking location.

However, to date, these systems have proven less effective for tracking, managing, and reconciling inventories across multiple geographically distributed sites. Such factors have limited the ability of ERP systems to support planning and operations across an extended service parts management network.

It should also be noted that planning algorithms within ERP, MRP, and Advanced Planning and Scheduling Systems (APS) are tailored for high-volume, replenishment-driven production environments. This is in direct contrast with aftermarket service operations in which low volumes of service parts are consumed at multiple, disparate stocking locations across the service chain. Planning in such a distributed, low-volume environment requires solutions that provide unique service-specific algorithms tailored to address these dynamics.

As such, best-in-class companies are deploying service parts planning and optimization engines to drive parts inventories to their leanest possible levels, while driving customer service levels upward. And as stated previously, to execute on the plans generated by these systems, many OEMs are partnering with 3PLs and 4PLs that manage the storage, distribution, repair, refurbishment, and distribution of service parts.

Those companies that derive significant revenue from spare parts sales are beginning to recognize that linking their parts planning and pricing systems, and processes can yield even more dramatic performance improvements. This dual approach allows companies to more proactively manage service performance and profitability through tactics such as:

- Managing inventory burn-off rate through pricing;
- Capping price reductions on critically short parts;
- Adjusting part forecasts based on price changes; and
- Adjusting stocking strategy based on known part margins and profits.

Mobile Field Service

Equipping field technicians with robust mobile functionality and connectivity — supported by well-defined business processes — can dramatically reduce costly latencies in field service delivery and impact overall profitability.

Indeed, service organizations that currently use mobile solutions to conduct and transact service calls on-site at the customer are outperforming those that rely on Web, e-mail, or spreadsheet-based solutions, according to recent Aberdeen research.

Companies that can economically outfit their technicians with devices like PDAs, laptops, multi-function smart phones, or pagers will begin to bridge the costly chasm between the field and the back office. They also stand to realize marked gains in revenues, profit margins, cash flow, and overall customer satisfaction.



Field service organizations with at least two years of mobile experience reported the following average performance improvements as a result of their mobile technology deployments:

- 31% increase in work orders completed per day;
- 34% increase in service revenues; and
- 33% improvement in Days Sales Outstanding (DSO).

Intelligent Asset Diagnostics and Repair

To tackle critical customer service objectives, leading service organizations are beginning to leverage emerging M2M-enabled solutions and, as a result, are reaching new heights in overall corporate performance.

Through the use of microprocessors that are embedded within the assets themselves and connected to the Internet, OEMs can automatically glean data on asset health and performance and then determine when equipment will need servicing, conduct remote repairs, deploy field technicians, and trigger parts orders.

With such proactive service provisioning in place, service organizations are replacing unplanned in-person service calls with carefully timed and delivered service data and are realizing huge improvements in overall service costs, equipment uptime, technician productivity, and overall profitability.

Recent survey results show that the firms exhibiting best-in-class post-sales service characteristics and a successful track record with M2M-enabled solutions have seen such performance gains as 139% improvement in daily work orders completed, 263% improvement in service revenues, and 50% reduction in emergency service orders.

As is the case in any emerging technology space, several obstacles stand in the way of wide-scale M2M adoption:

- ***Costs:*** Only one-third of best-in-class firms identified the costs of M2M-related hardware and software as a major challenge to implementation, but in reality initial instrumentation and development costs can escalate quickly — especially for OEMs with large installed bases of legacy assets.
- ***Device certification requirements:*** In addition to development costs, OEMs that deploy wireless M2M solutions must foot the bills for multiple phases of device certification. Wireless communication devices must pass muster with various governing bodies such as the Federal Communications Commission (FCC), the PCS-1900 Type Certification Review Board (PTCRB), the Cellular Telecommunications and Internet Association (CTIA), as well as the cellular network operators. This certification process can be lengthy and costly.
- ***Multiple communications standards:*** The global system for mobile communications (GSM) and code division multiple access (CDMA) are among the communications networks upon which M2M solutions rely. Many companies are waiting for more open communications standards to emerge before embarking on full-scale M2M deployments.



Field Technician Deployment Optimization

Field service optimization solutions automatically match the most cost-effective resource with each service order, based on prioritized weightings assigned to every possible schedule constraint. To accommodate evolving business priorities, most optimization solutions allow operators to reorder these weightings and to execute ad hoc “what-if” scenario analyses to test the financial and performance impacts of scheduling alternatives.

Due to the fact that many constraints are fluid — e.g., technician location, weather, and road conditions — work orders are assigned to technicians at the last possible moment. As such, technicians usually are aware of their current job, along with one or two more, instead of receiving a full day’s worth of work orders.

Leading companies consider constraints in these three categories:

- Technician-based constraints (e.g., skill sets, physical location, local geographic knowledge, preference for location and type of work)
- Environment-based constraints (e.g., road and weather conditions)
- Business-based constraints (e.g., marketing campaigns, SLA commitments, over-time restrictions, customer preferences, inventory, equipment, and vehicle availability)

As stated earlier, companies running truly optimized service schedules have, on average, improved work orders completed per day, per technician by 20%, service contract compliance 25%, and increased wrench time 18%.

Field service optimization solutions work best in close integration with related business systems such as customer relationship management (CRM), order processing, and accounting systems. Customer-specific requirements, customer history, and order-specific details are critical data bridges for an optimized end-to-end service operation.

Another critical supporting element for a cost-effective day-to-day field service schedule is an accurate view into near- and long-term service workload and technician capacity. Changes in business direction or activity — such as new market or geography entries or targeted sales and marketing campaigns — have a direct impact on service workloads, so companies must anticipate these events in advance to effectively plan service personnel and resources to meet customer demand.

Likewise, on the supply side, in order to promise certain service levels to customers, service managers must stay on top of future technician availability, accounting for vacation time, training time, contingent resource plans, and the like.

With up-to-date service demand forecasts and resource allocation plans in place, companies can effectively make day-to-day field service scheduling decisions, while understanding their impact on the bigger service chain picture.



Chapter Four: Best Practices & Recommendations for Action

Key Takeaways

- Bring field service and parts logistics under one operational umbrella.
- Leverage existing and new technology solutions to synchronize four service pillars.
- Address process deficiencies before deploying technology.

The best-in-class companies Aberdeen interviewed for this report have each leveraged combinations of these technology enablers, in conjunction with well-defined business processes, to achieve performance gains throughout the service chain. Some of the strategies that best practice winners identified as instrumental in their successes are detailed below.

Top 10 Service Management Strategies of Best Practice Companies

1. Bring field service and parts logistics under one operational umbrella:

The first step to address service as a cohesive business operation with top- and bottom-line ramifications is to coordinate the planning and execution of field service technicians and service parts. Often, the only way to accomplish this is to structure the organization so that parts and people are under one umbrella.

At one communications company Aberdeen interviewed, operational silos persisted after initial collaboration attempts, so a team of managers submitted a formal proposal to executives to unite the management of service and logistics. With the merger in place, the company has its sights set on unprecedented levels of service performance and customer satisfaction.

2. Leverage existing and new technology to synchronize four service pillars:

Companies that have already deployed ERP, order management, or CRM systems are well positioned to add service management functionality. These systems house critical customer and product data that will be needed in a service management system. When evaluating service technology providers, companies — especially in the mid-market — should ensure that full integration with existing systems is possible without unreasonable extensions to the implementation timeline or price hikes.

Companies that are building ties between service and logistics are working towards consolidated “command centers” that overlay parts and technician planning and tracking systems — and serve as single front-ends for visibility and exception handling.

In addition, leading companies are exposing inventory management capabilities to field workers through mobile devices. In this model, field technicians can report parts usage data from the field. The system then automates the process for restocking vehicles by monitoring parts usage and adjusting stock counts.



3. Address process deficiencies before deploying technology:

Without exception, all 10 best practice winners understand that growing an aftermarket service operation from a tactical cost center to a strategic profit center has more to do with creative and efficient business processes than with technology selection.

One notable example is Triton Plc, whose service operations account for 25% of its overall business. The company knew it needed to develop a customer-centric culture and re-visit its business processes in order to better position itself for long-term growth.

To accomplish this, the shower manufacturer set out to improve specific areas of deficient performance such as time spent on customer service calls, work order taking and scheduling procedures, and order resolution speed. The result: not a single process is the same today as it was five years ago.

4. Clearly define requirements and success criteria before evaluating technology solutions:

The adage about an ounce of prevention also holds true for planning a service transformation. To select the appropriate technology solution and continue to derive maximum benefit from it over time, companies must take the time to document and prioritize their requirements and criteria for success.

In the case of The Bobst Group, the company distinguished between primary and secondary objectives for success of their M2M-enable service initiative. The company's primary objective was to find a high-speed, remote service platform with a rapid ramp-up time, so that benefits could be realized quickly. The essential components of this solution would be three-fold:

- Minimal infrastructure to allow for immediate deployment with manageable costs and an expedient installation period;
- Minimal training for service technicians; and
- No additional administrative requirements.

And when Komax Corporation embarked on launching a mobile field service solution, it clearly identified its requirements in two critical areas: the robustness and frequency of connectivity the field service operation required, and an intuitive user-interface and workflows, so that technicians could easily learn and use the system. Komax evaluated how much "lag time" the company could live with and still achieve operational performance and customer satisfaction targets.

5. Leverage partnerships with service and logistics providers:

In many cases, companies can better meet customer service targets by establishing partnerships with contract service technicians and third-party logistics providers. As part of their service strategy, many mid-market companies especially are outsourcing all or part of their service operations. They are turning to third-party logistics providers to manage processes such as service parts inventory planning and distribution, reverse logistics and repair depot management. They are also contracting with centralized (often offshore) call centers to manage inbound customer inquiries, and contract with independent service providers to manage break/fix and preventive maintenance processes.



The tactic of having channel partners participate in service delivery makes for a fragmented service chain, creating especially demanding requirements for business process integration and seamless transaction throughput. But with the right partners and properly installed integration bridges, the benefits that accrue to companies from an outsourcing approach usually outweigh the risks.

As your company weighs this risk/benefit equation, keep this in mind: The ideal mix of in-house and outsourced should result in the highest possible levels of customer satisfaction, without compromising operating efficiencies, revenue growth opportunities, or total cost of technology ownership.

For its part, Tellabs decided that the best way to stay focused on its core products and to ensure consistent compliance with customer requirements was to outsource its entire spare parts planning, storing, and distribution process. For its efforts, Tellabs saw an initial service parts inventory reduction of more than 60%, which amounted to approximately \$5 million in savings virtually overnight.

6. Attack aftermarket service as a top-line business opportunity:

A core tenet of adopting a strategic approach to aftermarket service is leveraging service efficiencies and heightened customer satisfaction levels to drive revenue growth. Several companies Aberdeen interviewed have been able to offer premium service level agreements with tighter response times. Further, some have even taken on the service workloads of other manufacturers, for significant upticks in revenue.

For one mid-size industrial equipment company, service transformation was not just about bottom-line improvements. The company also had designs on building out differentiated service offerings to complement basic equipment maintenance, such as asset-management services for optimizing equipment utilization and value. In the two years since embarking on its service reengineering initiative, the company has increased technician productivity from 55% to 70% billable hours and improved revenue per technician by 25%.

7. Involve stakeholders early and often in transformational process:

According to our research, change management is one of the most significant impediments to enacting service chain improvements. No measure of process documentation or technology tools will impact performance if call center workers, dispatchers, field technicians, and other service workers do not believe in their value.

At the equipment company noted above, the project managers attribute the success of its service overhaul effort in large part to the enhanced accountability and ownership assumed by stakeholders throughout its service operations. With 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 service organization from a regional to national business in less than two years.

Likewise, one of the keys to IR Hussmann's continued success with its service management strategy has been its proactive technician training program, which has helped the company gain buy-in for the new approach to servicing customers. Following the deployment of the *SmartTech Service System*, IR Hussmann rolled out its Tech-Ed Program to increase awareness of work order processes and promote accountability among technicians. By creating a program that gives service engineers a sense of ownership in their



roles, IR Hussmann establishes them as change agents and places them in a position to drive the company's profitability.

8. Adopt a two-pronged approach to measuring after-market service efficacy:

If your company hasn't done so already, ask your existing customers whether they are satisfied with the current level of service you're providing, and how they measure your company's performance. This information will be critical for establishing a set of customer-centric KPIs by which you should be measuring your service business.

First, track operational metrics that include the following:

- Average daily work orders completed per technician
- Average hours per technician per day spent working on customer sites ("wrench time")
- Average travel time per work order ("windshield time")
- First-time part fill rate
- First-call resolution rate
- Machine down waiting part (MDWP)
- Mean time to repair (MTTR)
- On-time part delivery
- Percentage of work orders completed late
- Service contract compliance percentage
- Spare parts inventory turns
- Spare parts stock-outs/back-orders

Just as important, if not more so, companies should also track customer-facing metrics such as customer retention rates, contract renewals, contract compliance, percentage of service contracts with priority-based time constraints, and service revenue growth.

It is critical for companies to adopt a customer-first mentality and weigh every decision regarding service technology, process, strategy, and performance against the backdrop of customer impact.

9. Adopt an enterprise-wide perspective:

While it may be unreasonable to expect average or laggard firms with limited service technology experience to immediately embark on an enterprise-wide deployment of new service processes or systems, it should be every company's ultimate goal to optimize on this scope. Your company may need to begin with local or regional pilot programs to secure executive or IT buy-in.

As it happens, only about 11% of companies Aberdeen recently surveyed currently optimize field service scheduling and delivery on an enterprise-wide basis. The rest optimize on a divisional or regional basis, or not at all.



A company's objective should be to provide service consistency for customers who interact with multiple divisions or regions of their organization. For instance, if one division offers 2-hour appointment windows, then all divisions should strive for the same service level.

10. Invest in forecasting and planning technician capacity and work-order demand:

Companies working to manage service at a strategic business level need to apply the same forecasting and planning rigor often used in service parts management to technician capacity planning, in order to complete the service forecast profile.

Fully 58% of companies that participated in a recent study do not forecast service demand, and 63% do not forecast service supply, or they rely on spreadsheets for this purpose. With a more preemptive approach to service chain planning, companies can reach new performance heights with such tactics as pre-positioning technicians to meet anticipated customer demand.

Chapter Five: The Best Practice Case Studies

Enterprise Winners	Solution Providers Used
Applied Biosystems	Axeda Systems
The Bobst Group	ei ³ Corporation
British Gas (Centrica)	Vidus Limited (an @Road Company)
First Service Networks	Siebel Systems
IR Hussmann Corporation	FieldCentrix
Komax Corporation	Single Source Systems
Roto-Rooter	Gearworks and NEXTEL
Tellabs	MCA Solutions and DHL Logistics
Triton Plc	CS Group – Pinnacle
Mid-size industrial equipment service company (name confidential)	Astea International

Source: Aberdeen Group, June 2005



Applied Biosystems Delivers Proactive Service with Remote Diagnostic Strategy

Business Challenge

For Applied Biosystems – a provider of life science instrumentation and peripherals to the world’s top bio-medical researchers – providing productive instruments is a task that goes well beyond the initial sale. The company’s field service organization is responsible for maintaining 180,000 instrument systems in nearly 100 countries.

The challenges of maintaining uptime for such instruments are familiar to almost all equipment service organizations: inefficient processes, error-prone data management practices, and insufficient automation require the company to spend unnecessary time on data entry, technician deployment, and work order processing. This dynamic requires time for unproductive work, rather than focusing on the customer’s productivity and uptime.

Prior to pursuing a remote diagnostic service strategy, the company ran a reactive service organization, promising 4-hour callbacks and 48-hour response time to customers suffering instrument failures. The company’s primary method of handling service calls involved technical support personnel diagnosing problems over the phone using a canned set of questions. Diagnostic and troubleshooting procedures comprised best guesses and anecdotal chronicling of past experiences and were not based on product health or performance data.

Inaccurate failure diagnosis often resulted in further delays if additional replacement parts were required. The service engineer would order parts during the first visit and replace the additional parts during follow-up. To further complicate matters, service engineers would enter service work data into a LotusNotes database, which required replication into the Applied Biosystems’ SAP ERP system. Still, complete historical data on asset and customer histories was scarce and disparate.

Best Practices in Strategic Service Management

Company Name

Applied Biosystems
(www.appliedbiosystems.com)

Solution Provider

Axeda Systems, Inc. (www.axeda.com)

Business Challenge

Manual and reactive service processes engendered inefficient technician deployments and were degrading equipment uptime and customer satisfaction.

Strategy

Take a proactive approach to post-sales service by leveraging remote monitoring technologies to enable failure prediction, faster equipment problem diagnosis, and rapid resolution.

Value Achieved

- Immediate reduction of service response time
- Increased equipment uptime
- Improved overall customer satisfaction
- Competitive differentiation with BioMonitor® Service



This manual — and largely reactive — approach to repairs and maintenance made it increasingly difficult to meet the quality standard of service that customers were demanding.

Post-Sales Service Strategy

With rising customer expectations of service and increasing equipment complexity, Applied Biosystems realized it needed to take a proactive approach to post-sales service. In an effort to maximize equipment uptime and customer productivity, the company embarked on a mission to:

- Predict failures;
- Simplify remote diagnosis; and
- Expedite problem resolution.

Applied Biosystems looked to deploy a technology solution that would enable technical support to be more effective and reduce the customer's burden in the diagnostic process. In a first-phase effort, the company developed intelligent software agents that monitored instrument performance and sent daily activity data via email to a central repository point. Data indicating abnormal asset performance would automatically trigger service alarms.

This prototype system, however, did not provide an enterprise-wide data management capability and would not change the fundamental truth that Applied Biosystems' service engineers were still operating in reactive mode, i.e., responding to instrument failures after they had occurred.

Applied Biosystems decided to investigate machine-to-machine (M2M) solutions that leveraged intelligent embedded agents, enterprise-class databases, and internet connectivity to provide real-time visibility into equipment performance. Such solutions would give engineers access to leading indicators of instrument failures before they occurred. Ideally, the solution would serve as a tool not only for technical support and the call centers, but also for service engineers to troubleshoot and fix problems remotely without an on-site visit.

The company envisioned that this solution would allow centralized service technicians and field service engineers to diagnose equipment problems before traveling to customer sites. The goal was to dramatically increase first-time fix rates — and customer satisfaction.

Solution Selection and Deployment

After an in-depth evaluation process, Applied Biosystems partnered with Axeda Systems, Inc. to develop and deploy its BioMonitor[®] Service. Through the use of Axeda's Device Relationship Management (DRM) software, Applied Biosystems could gather such instrument data as laser power, laser current, temperatures, voltages, electrophoresis current, and PC disk usage.

The solution allows Applied Biosystems to continuously monitor the operational parameters of each device remotely by enabling remote diagnostics, planned maintenance, failure prediction, and proactive notification, thus increasing instrument uptime. The tech-



nology also allows Applied Biosystems to forecast and plan component replacement as scheduled maintenance rather than unplanned downtime.

The first phase of the rollout included all of major genome research centers — including Baylor College of Medicine, Washington University, The Whitehead Institute, The Institute for Genomic Research (TIGR) and the Sanger Centre — with phased implementation eventually moving on to smaller customers.

Currently, Applied Biosystems has about 1000 instrument systems connected and actively monitored around the clock. The success of the deployment prompted Applied Biosystems to formalize the BioMonitor service and launch it to customers worldwide.

By proactively monitoring and reducing the turnaround time needed to repair problems, the company can provide customers with higher levels of instrument uptime and performance.

Results

Applied Biosystems' M2M-enabled service solution not only allows its own service operation to run more efficiently, but also has a direct impact on customer productivity. Moreover, equipment operators can focus more time on lab productivity by providing life science customers with an around-the-clock expert always looking out for potential problems, and notifying them proactively of any instrument-related issues.

The M2M solution maximizes instrument uptime and minimizes service response time, resulting in significant cost and time savings as well as productivity increases for the company's service organization and its customers. In fact, several genome centers have reported up to a 30% increase in instrument productivity after receiving the BioMonitor service.

Supported by the M2M solution's remote monitoring capabilities, Applied Biosystems' service business has evolved from a reactive to a proactive service provider. Its service and support personnel receive notifications when instrument failures occur (or, better yet, are about to occur) at a customer's site. The company can then dispatch an engineer immediately with the required replacement parts in hand — often before the customer is even aware of the problem.

Shortly after implementing the BioMonitor service, Applied Biosystems realized it could reduce the number of onsite visits engineers were making to customers by about one-third. With 33% of service issues resolved remotely, engineers are able to complete more work orders per day. According to the company, customer relationships have greatly improved and sales have increased.

Lessons Learned

Critical success factors for Applied Biosystems' reengineering of its post-sales service strategy include the measured rollout of the technology, starting first with major customers and then moving onto smaller users to assure a seamless implementation process for end users.

In addition, because of the sophistication of the equipment, implementing BioMonitor service is merely a software upgrade to the device. By completing the installation and deployment of the solution as part of routine site visits, Applied Biosystems achieved

success in its implementation with minimal disruption to customers or field service activities.

Future Outlook

Looking ahead, Applied Biosystems plans to expand the BioMonitor service to all of its products – monitoring both the instrument and its subsystems. For example, on the Mass Spectrometry family of products, monitoring the turbo vacuum pump helps the company better forecast when repairs and replacements need to be made.

Applied Biosystems is also beginning to utilize remote monitoring capabilities to track data application performance and alert technicians when maintenance is due. The company is now actively partnering with Axeda to continue advancing the DRM software, and it plans to design all of its future instrumentation and systems for remote monitoring and diagnosis.

Applied Biosystems' Competitive Maturity Profile

	Laggards	Industry Average	Best-in-Class
Process	Trigger <i>planned</i> and <i>unplanned</i> service orders primarily based on verbal communication from customer	Trigger <i>planned</i> service orders primarily based on customer and/or asset history; Trigger <i>unplanned</i> service orders based on verbal communication from customer	Trigger <i>planned</i> and <i>unplanned</i> service orders primarily based on data captured directly from the serviceable asset
Organization	Service is viewed as pure overhead, and there is no discrete management or P&L for service operations.	Director-level executive oversees cost-cutting and productivity targets for service operations; corporate culture is based on customer satisfaction, but no customer satisfaction targets or incentives exist for service workers	Vice president or higher level executive oversees profit-and-loss (P&L) for service operations; service workers receive compensation incentives for achieving customer satisfaction targets
Knowledge Management	Customer and asset data recorded by employees after the service order, and stored in <i>decentralized</i> employee files	Customer and asset data recorded by employees after the service order and stored in <i>centralized</i> shared files	Customer and asset data captured in <i>real-time</i> from the serviceable asset and stored in centralized <i>database</i>



	Laggards	Industry Average	Best-in-Class
Technology	Paper or spreadsheet-based status and tracking tools	Desktop or handheld Web-based status, tracking, order-processing, and communication tools	Embedded intelligent devices that transmit data on assets' condition, repair history, etc.
Performance Measurement	Service performance not systematically tracked and measured.	Service performance measured with operational metrics (e.g., ratio of dispatchers to technicians, first call resolution rate, work orders completed per technician, per day)	Service performance measured with operational metrics (e.g., ratio of dispatchers to technicians, first-call resolution rate, work orders completed per technician, per day) and customer-facing metrics (e.g., service revenue growth, customer retention, customer productivity, customer satisfaction, and SLA compliance)

The Bobst Group Sees Performance Gains Materialize with M2M-Enabled Service Solution

Business Challenge

Operating in a saturated market with a large installed base, the Bobst Group – a supplier of machines and services for the folding carton, corrugated board, and flexible materials industries – was seeing fewer opportunities to sell new equipment to its manufacturing customers. The company knew that the only way to win was through its service operation, and wanted to spur service-based revenue growth by offering customers highly reliable machinery and service delivery.

Facing increasing competition from global players, the manufacturing companies that make up the Bobst Group’s customer base are honing in on maximum production efficiencies and machine utilization as critical components to success. For them, the cost of machine downtime expands far beyond the mere value lost through an unused, depreciating machine asset. It also includes:

- The resultant lost revenue;
- The personnel cost wasted by staffing underutilized employees;
- The percentage of overhead lost by paying to run a facility that is not fully operational; and
- The cost of material wasted.

Often, preventing equipment downtime has required manufacturers to keep machine experts on staff for immediate support. But in the case of the Bobst Group’s flexible material business unit – which supplies equipment and process solutions for the printing and converting of flexible packaging materials such as plastic, film, label stock, aluminum foil, wall coverings, gift wrapping, and transfer paper — machinery has become extremely complex.

Consequently, there are fewer individuals who are qualified to provide machine support, and the costs for manufacturers to have these experts on site have become prohibitively high. Until recently, it was not uncommon for the Bobst Group’s machines to be down for hours or days while waiting for the appropriate specialist to arrive at the facility.

Best Practices in Strategic Service Management	Company Name
	The BOBST Group (www.bobstgroup.com)
	Solution Provider
	ei ³ Corporation (www.ei3.com)
	Business Challenge
	To maximize the value of engineering assets, without incurring the exorbitant costs associated with having a full-time maintenance staff on-site for each customer.
Strategy	
Leverage M2M solution to build customer retention, up-sell and cross-sell existing customers, and increase service-based revenue growth.	
Value Achieved	
<ul style="list-style-type: none"> • Provided value-add services to customers. • Increased equipment uptime, first time resolution rates, and customer satisfaction. 	



In order to satisfy customer needs for increased equipment uptime, the Bobst Group needed to maximize the value of its engineering assets, without incurring the exorbitant costs associated with having full-time staff on hand to provide machine support. The company employs more than 5,800 people and earns annual revenues of roughly US\$1.2 billion.

Post-Sales Service Strategy

In response to increased customer demand for faster resolution times and maximum machine uptime, the Bobst Group pursued a machine-to-machine (M2M) solution to help the company minimize downtime, increase troubleshooting efforts, and actively support service delivery demands.

The company identified primary and secondary objectives for project success. The company's primary objective was to find a high-speed, remote service platform with a rapid ramp-up time, so that benefits could be realized quickly. The solution had three essential components:

- Minimal infrastructure to allow for immediate deployment with manageable costs and an expedient installation period;
- Minimal training for service technicians; and
- No additional administrative requirements.

The secondary objective of the project entailed meeting the needs of customers who would be utilizing the high-speed, remote service. This called for a system that would:

- Meet the security standards of customer IT and production groups;
- Require minimal training for customers;
- Necessitate minimal customer participation to get the system up and running; and
- Outperform customer expectations by enabling remote service by both the Bobst Group's and its customers' in-house staff, corporate engineers, and service providers.

Solution Selection and Deployment

After an in-depth evaluation process, the company chose ei³'s Argo Remote Service Platform for its ability to meet both objectives. The remote service platform enables Bobst troubleshooting experts to access and monitor equipment from anywhere in the world using commercially available devices and ei³'s software and security system.

The Argo platform is based on a network that is segmented by machine so that a virtual door blocks each piece of equipment. High-speed, secure tunnels through the Internet connect Argo's gateway server with the users' Web browsers and machines around the world. No additional VPN software or training of service personnel is required since technicians use a standard Web browser and the same control software on-site as they do off-site.

The solution also substantially exceeds the bandwidth, speed, and reliability of the Bobst Group's previous system, which utilized dial-up modems. The remote service platform



provides technicians and specialists with instant access to remote devices in real-time, so they can effectively troubleshoot and monitor the assets within minutes of a downtime event, as well as more proactively allocate support resources.

The service platform was implemented in two phases. The first phase rolled out the platform to four beta customers of varying customer types (from large enterprises to small job-shop manufacturers) beginning in the fourth quarter of 2004. Initial delivery of the Argo Remote Service Platform also included remote monitoring tools: remote monitoring of key process parameters and productivity data, downtime tracking, and production reporting. The services were delivered via ASP, with ei³ hosting the application on its data servers; installations took between 30 and 60 days.

Results

Although full scale deployment of the platform is still in progress, the Bobst Group has already seen significant benefits from the solution. As a result of the implementation, the Bobst Group is able to deploy the right engineer to the right location, at the lowest cost and greatest speed. In turn, this has led to significant reductions in service reaction and travel times, an increase in ROI of high-level engineers, and improvements in customer machine performance.

Whether enabling a simple machine reset to be performed off-site by a Bobst Group technician or allowing an extensive reliability study to be conducted from Europe by the machine designer, the remote service system enables the Bobst Group to more effectively allocate their support resources and its customers to operate more efficiently and competitively.

Prior to the implementation, the Bobst Group often deployed service technicians via air transport to customer sites for maintenance and repairs, which proved to be a strain on the bottom line. Now, with ei³'s engineers acting as the first line of service for all issues and repairs, the Bobst Group has reduced on-site service visits by 50%, in turn reducing overall service costs.

The solution has also proven itself as a premium, revenue-making opportunity for the company by providing the sales team with additional cross- and up-sell opportunities through service packages and maintenance contracts for current customers.

Lessons Learned

By selecting a solution with a fast ramp-up time, the Bobst Group was able to recognize ROI from the solution in short order. Because the solution operates on an Internet service platform, it required little infrastructure investment. Therefore, no additional training was required of the Bobst Group's service technicians because they use the same software to diagnose and rectify problems remotely as they do on-site. Another success factor in the installation was placing the management of machine access in the hands of the equipment owner, which alleviated security issues for technicians' work.

Future Outlook

The Bobst Group is currently finalizing the marketing of the remote service platform and plans to make it available to most customers by early July 2005. The company has begun



implementing remote services features in its new machines and is aiming to integrate the service in its product lines in Europe to expand the offering worldwide.

The company will also provide a formal introduction of the service to existing customers along with different service packages, which include the remote service platform and some level of remote monitoring applications. In the near future, new customers will likely receive a service package including ei³'s system with machine purchase.

The Bobst Group's Competitive Maturity Profile

	Laggards	Industry Average	Best in Class
Process	Trigger <i>planned</i> and <i>unplanned</i> service orders primarily based on verbal communication from customer	Trigger <i>planned</i> service orders primarily based on customer and/or asset history; trigger <i>unplanned</i> service orders based on verbal communication from customer	Trigger <i>planned</i> and <i>unplanned</i> service orders primarily based on data captured directly from the serviceable asset
Organization	Service is viewed as purely cost, and there is no discrete management or P&L for service operations	Director-level executive oversees cost-cutting and productivity targets for service operations; corporate culture is based on customer satisfaction, but there are no customer satisfaction targets or incentives for service workers	Vice president or higher-level executive oversees profit-and-loss (P&L) for service operations; service workers receive compensation incentives for achieving customer satisfaction targets
Knowledge Management	Customer and asset data recorded by employees after the service order and stored in <i>decentralized</i> employee files	Customer and asset data recorded by employees after the service order and stored in <i>centralized</i> shared files	Customer and asset data captured in <i>real-time</i> from the serviceable asset and stored in centralized database
Technology	Paper or spreadsheet-based status and tracking tools	Desktop or handheld Web-based status, tracking, order-processing, and communication tools	Embedded intelligent devices that transmit data on assets' condition, repair history, etc.

	Laggards	Industry Average	Best in Class
Performance Measurement	Service performance not systematically tracked and measured.	Service performance measured with operational metrics (e.g., ratio of dispatchers to technicians, first call resolution rate, work orders completed per technician, per day)	Service performance measured with operational metrics (e.g., ratio of dispatchers to technicians, first call resolution rate, work orders completed per technician, per day) and customer-facing metrics (e.g., service revenue growth, customer retention, SLA compliance)



British Gas Fuels Customer Satisfaction with Field Service Optimization

Business Challenge

For US\$11 billion utilities giant British Gas, costly latencies in the service chain were putting a significant drain on profit margins and negatively impacting productivity, operational efficiency, and customer satisfaction.

British Gas' market footprint in the UK includes 12 million natural gas customers and 6 million electricity customers, and the company handles upwards of eight million service requests per year.

Until the mid-1990s, British Gas was privatized and the company operated its service organization — incorporating 8,000 field service engineers — purely as a tactical cost center, rather than a core value and revenue source.

The company was losing more than \$600 million per year from its service operation largely due to:

- Manual service scheduling and tracking processes.
- A lack of automation in technician deployment.
- An inability to effectively respond to unplanned interruptions in its daily service schedule.

The operation traditionally allocated service work orders with a paper-based system at the start of each day, holding workflow and scheduling adjustments for the following day. Without a process or communications infrastructure to shuffle the service workload as work progressed throughout the day, the company was ill-equipped to handle unplanned constraints or interruptions that arose. Worse, it lacked adequate resources to allocate the best technician to any given work order.

Best Practices in Strategic Service Management

Company Name

British Gas (Centrica)
(www.centrica.co.uk)

Solution Provider

Vidus Limited (an @Road company)
(www.vidus.com)

Business Challenge

Lack of automation in work order scheduling and limited visibility into the supply side of the service chain left the company ill-equipped to allocate technicians' service calls and threatened to diminish profit margins.

Strategy

Leverage a service management solution to automate work order deliveries, provide real-time visibility of service processes, and enable service personnel to react to planned and unplanned constraints.

Value Achieved

- Significantly reduced travel time for field engineers
- Improved first-time fix rates
- Increased customer satisfaction



Post-Sales Service Strategy

In order to compete in an increasingly crowded and competitive market, British Gas realized it would need to leverage customer service as a differentiator. The company needed to automate work order allocation to maximize the productivity of its 8,000 field service engineers, enable the company to meet increasing customer demands and narrower service appointment windows, and ultimately increase customer satisfaction.

British Gas first re-organized its service parts distribution network to support next-day delivery. It also deployed laptop computers to field technicians. Still, work allocation and dispatching remained relatively manual processes.

Realizing further optimization could drive incremental service revenue and save the company millions of dollars in service costs, British Gas pursued a fully integrated dynamic forecasting, planning, and scheduling approach to optimize service resource allocation, which included the deployment of new laptops. Put simply, the goal was to set the industry standard for service in the minds of its customers, and transition the service operation from a cost center to a strategic profit center.

Next, the company reengineered its field force to operate smarter and more efficiently by leveraging field service optimization technologies that calculated optimal workload allocation based on pre-defined and prioritized constraints and values.

This evolution involved implementing an intelligent solution that would provide real-time information and visibility of service delivery processes. Because many service commitment constraints — technician location, or weather and road conditions — are fluid, Aberdeen research indicates that work orders are best assigned to technicians at the last possible moment, often called a “drip feed” approach. As such, technicians are usually aware of their current jobs, and often the next one or two assignments, instead of receiving a full day’s worth of work orders.

This is the tactic British Gas employed. By continuously re-optimizing its service schedule over the course of a given day, the company could effectively account for exceptions in service delivery and execute the best possible solution without sacrificing productivity and service levels.

Solution Selection and Deployment

British Gas conducted a thorough evaluation of several field service optimization solutions available in the market. After narrowing down the solution providers to two qualified candidates, British Gas conducted a comprehensive final round of evaluations, which included a proof of concept exercise that used live business data to measure the finalists’ relative performance.

Over the course of one week, British Gas compared the business performance impact of each solution, tracking staff productivity, and their ability to execute against commitments, wrench time, and total service costs. Unannounced events and schedule constraints were introduced throughout the day to track how well each solution responded to changing conditions and parameters.

British Gas finally selected Vidus’ *taskforce* solution for its successful performance during the test phase and its ability to intelligently automate the end-to-end service management decision process. The company deployed an initial pilot of *taskforce* in about four



months, and the system is now live in the business for 1,500 users who are actively using the *taskforce* solution for daily activities. British Gas is bringing on additional engineers across the UK; by the end of 2005, the company expects that the majority of its 8,000 engineers will be equipped to actively use the application.

Results

Although British Gas is still in the process of rolling out the technology, the company is already seeing both quantitative and qualitative benefits from optimizing its field service operation. The majority of these benefits are derived through operational efficiency and effectiveness.

The *taskforce* system allows for automated allocation of qualified technicians for each work order according to skill set, which has improved first-time fix rates and technician productivity. By providing better allocation of service technicians, British Gas can provide customers with narrower delivery windows for service calls, reduce the number of rescheduled appointments, and increase customer and employee satisfaction. The company estimates that more efficient scheduling will also be able to reduce travel time for field engineers significantly.

Lessons Learned

Customer-centric service organizations ultimately win market share. By recognizing the need to leverage its service operation as a competitive differentiator, British Gas positioned itself for success from the start.

The company notes that differentiating solely on price is not an effective strategy for providers of essential services. By focusing on improving customer service levels and adopting a “customer-first” mentality, British Gas examined all implementation decisions using a customer impact “lense” and identified optimum goals for success. Execution included synchronizing its field and back-office resources to provide a more seamless customer experience.

Future Outlook

British Gas intends to forge closer ties in its service chain among the engineers, service parts, and work tasks at hand. The goal is to guarantee that the right engineer is deployed to the right job, with access to the right parts at the right time.

In addition, the company plans to leverage its knowledge management system to better equip back-office customer service representatives, enabling them to diagnose asset failures remotely and potentially even avoid dispatching a field engineer.

On the mid-term horizon, British Gas is evaluating opportunities to integrate machine-to-machine (M2M) technology in its heating, plumbing, electrical, and other assets in order to better support remote asset diagnostics capabilities.

British Gas Competitive Maturity Framework

	Laggards	Industry Average	Best-in-Class
Process	Work schedules are fixed daily and manually adjudicated by dispatchers or schedulers	Work schedules are optimized one service order or one constraint at a time	Work schedules are optimized by considering all service orders against all constraints and total technician capacity simultaneously
Organization	Service is viewed as pure overhead, and there is no discrete management or P&L for service operations	Director-level executive oversees cost-cutting and productivity targets for service operations; corporate culture is based on customer satisfaction, but there are no customer satisfaction targets or incentives for service workers	Vice president or higher-level executive oversees profit-and-loss (P&L) for service operations; service workers receive compensation incentives for achieving customer satisfaction targets
Knowledge	No stakeholder (executives, call center, dispatch center, parts depot, field technician) has the most current and accurate view of inventory, contract, resolution, and other service-related data	Visibility into inventory, contract, resolution, and other service-related data declines in currency and accuracy while moving from call center to dispatch center to field technician	All stakeholders have on-demand or real-time access to the same inventory, contract, resolution, and other service-related data
Technology	Primary technology solution is spreadsheet-based	Primary technology solution is a back-office service management system (SMS)	Primary technology solutions are schedule and route optimizers and mobile field service solutions



	Laggards	Industry Average	Best-in-Class
Performance Measurement	Level of service optimization not systematically tracked and measured	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first-call resolution rate, work orders completed per technician per day)	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first-call resolution rate, work orders completed per technician, per day) <i>and</i> customer-facing metrics (e.g., service revenue growth, customer retention, SLA compliance)

First Service Networks Scales Business with Service Cycle Automation

Business Challenge

Providing maintenance services to more than 40,000 sites across the U.S., Canada, and Puerto Rico would be a logistical nightmare for even the most technologically advanced companies. So when First Service Networks – a North American provider of site maintenance management services for retail chains and other commercial properties – found itself sinking underneath a mountain of paper-based processes, the company knew it was time to make some changes. First Service Networks knew it could no longer sustain additional contractors and customers without overhauling its service processes and supporting infrastructure.

First Service Networks serves two major constituents: nationwide multi-unit customers — the facility owners or occupants requiring maintenance services — and the independent service contractors who perform the service. Multi-unit customers contract with First Service Networks to receive service, and First Service Networks in turn manages independent contractors to perform the work.

First Service Networks had traditionally relied on telephones, fax machines, and answering services to manage its network of 3,800 independent service contractor companies. Under this system, a customer’s service request could require up to 12 calls to contractor’s dispatchers just to deploy the contractor and ensure they get to the site.

“By 1999, we realized we were maxed out and could not scale,” said Russell Joyner, First Service Networks’ vice president of information technology. “Every time we added a customer, we would have to add more employees and managers, making our cost structure uncompetitive.”

Best Practices in Strategic Service Management

Company Name

First Service Networks
(www.firstservicenetworks.com)

Solution Provider

Siebel Systems (www.siebel.com)

Business Challenge

Eliminate paper-based processes and automate service calls to increase efficiency of service deliveries and allow the company to sustain operational growth.

Strategy

Implement a comprehensive, end-to-end service management system to seamlessly manage customer touch-points and the entire service cycle.

Value Achieved

- Eliminated 50% of call center phone calls
- Reduced service repair cycle by three hours
- Reduced time-to-job approval and time-to-quote by 25%
- Increased quote approvals from customers by 40%



A paper-based system was unable to keep pace with customer demands for speed, accuracy of service, and access to information about repair operations and cost. The company needed a solution that would better manage customer, product, and service information and create more efficient processes.

Post-Sales Service Strategy

First Service Networks realized the only way to sustain operational growth was to implement company-wide changes centered on a unified information platform. First Service Networks also saw an opportunity to extend its competitive advantage by leveraging technology across customer touch-points to significantly improve productivity and customer satisfaction.

To meet the growing expectations of customers, First Service Networks decided to deploy an end-to-end service management system. The company wanted a comprehensive solution that would provide field service, call center, customer self-service, and partner-management capabilities. It also wanted a single common platform that could closely manage the entire service cycle – from receipt of service requests to dispatching and monitoring the service contractor, invoice creation, cost containment, and billing.

Solution Selection and Deployment

After evaluating several enterprise software providers, First Service Networks chose Siebel's Field Service, Call Center, eService, and Partner Relationship Management applications to tie together and manage all aspects of its service cycle. The full solution was deployed in April 2001, and the First Service Networks IT team has maintained and upgraded the system since then.

The solution allows customers to contact First Service Networks via the phone, email, or Web to request service. The system also pushes preprogrammed preventive maintenance requests to contractors and tracks them to completion. These requests are then logged into the company's consolidated database, which unifies service, parts, asset, asset ratings, and customer information. Using the system, Customer Advocates route the request to the appropriate service contractor based on the preassigned location, availability, customer preferences, skills, and other factors.

Service contractors receive the request via the notification method of their choice—email, phone, web, or other messaging. Armed with this data, technicians can bring the appropriate tools and parts on the first and final visit. When contractors finish a service call, they enter the details of work performed, along with their invoice including parts and labor hours using the Partner Relationship Management web-based system.

To further automate the process, First Service Networks integrated the Siebel solution with its J.D. Edwards ERP system. This integration allows the company to seamlessly pass customer data from completed jobs to its financial application for billing, and in turn accelerate the billing process.

Results

The shortened billing cycle, coupled with reduced repair cycle time and more efficient processing of service requests at the call center, has increased productivity and produced



key performance gains for the company. In fact, First Service Networks reduced its service cycle repair time by three hours, reduced call center phone calls by 50%, and achieved a 25% reduction in time-to-job and time to invoice the customer.

Having service contractors update job details and create invoices using the Siebel PRM software has significantly reduced administrative burdens for First Service Networks as well, enabling the company to speed invoice and collection by 50% in just two years. Service contractors as a result, get paid faster, so they have incentives to update the system as soon as possible. In addition, First Service Networks reports a 40% increase in quote approvals from customers since implementing the solution; the company attributes the increase to its ability to provide customers with faster quotes and more accurate costing of parts and labor.

In its dealings with facilities managers at multi-unit customers, First Service Networks uncovered the explicit requirement for consolidated facility quality data. This has opened the doors to multiple additional product lines, and First Service Networks has seen marked upticks in revenue as a result of running the service networks for other companies.

Lessons Learned

First Service Networks acknowledges the importance of being an early adopter of technology-enabled field service automation. As one of the only maintenance service providers in its space to leverage a venture-capital-backed service cycle automation strategy, First Service Networks was able to gain a significant competitive advantage in the market.

Also key to the company's success has been its commitment to tracking operational metrics such as the time to complete a service request, contractors' usage of the system, and decreases in invoice turn-around time. By analyzing these metrics, First Service Networks has been able to track the top- and bottom-line impact of the solution and quantify its ROI.

Future Outlook

Looking ahead, First Service Networks bases its growth strategy on its technology-enabled service provisioning processes. By continuing to excel at customer service, the company plans to expand business with existing customers, as well as acquire new customers.

In addition, First Service Networks plans to leverage its supporting infrastructure to encourage contractors to perform more of their total business under contract with First Service Networks and in turn refer more multi-unit customers to them.

The endgame: reduced costs for customers and more business for service contractors. First Service Networks will continue to enhance its Siebel implementation to ensure the highest levels of efficiency and customer satisfaction.



First Service Networks' Competitive Maturity Profile

	Laggards	Industry Average	Best in Class
Process	Execute work activity in the field through worker knowledge; reconcile activity after the fact	Execute work activity in the field through worker knowledge; update work orders and handle invoice reconciliation in the field	Execute work activity by applying organizational expertise, updating work orders and contracts, and reconciling invoices in the field.
Organization	Service is viewed as purely cost, and there is no discrete management or P&L for service operations	Director-level executive oversees cost-cutting and productivity targets for service operations; corporate culture is based on customer satisfaction, but there are no customer satisfaction targets or incentives for service workers	Vice president or higherlevel executive oversees profit-and-loss (P&L) for service operations; service workers receive compensation incentives for achieving customer satisfaction targets
Knowledge Management	No stakeholder (executives, call center, dispatch center, parts depot, field technician) has the most current and accurate view of inventory, contract, resolution, and other service-related data	Visibility into inventory, contract, resolution, and other service-related data declines in currency and accuracy moving from call center, to dispatch center, to field technician	All stakeholders (executives, call center, dispatch center, parts depot, field technician) have on-demand or real-time access to the same inventory, contract, resolution, and other service-related data
Technology	Paper or spreadsheet-based status and tracking tools	Desktop Web and email-based status, tracking, order-processing, and communication tools; cell phones	Handheld/mobile Web and email-based status, tracking, order-processing, and communication tools; cell phones

	Laggards	Industry Average	Best in Class
Performance Measurement	Level of service optimization not systematically tracked and measured	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first call resolution rate, work orders completed per technician, per day)	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first call resolution rate, work orders completed per technician, per day) and customer-facing metrics (e.g., service revenue growth, customer retention, SLA compliance)



IR Hussmann Freezes the Competition with Field Service Process Overhaul

Business Challenge

Despite reporting more than \$1 billion in North American revenue, IR Hussmann Corporation (part of the Ingersoll-Rand Climate Control sector) was facing a profitability downturn and declining productivity due to disjointed internal business processes and a lack of automation in its field service operations.

With 1,300 service and installation technicians and 55 branch operations across North America, IR Hussmann runs an extensive manufacturing and service operation for a product line that includes refrigerated display merchandisers and industrial refrigeration systems.

IR Hussmann’s service department was weighed down by paper-based processes and a lack of synchronization among technicians in the field and back-office personnel. The company’s disconnected approach to service management was further complicated when IR Hussmann acquired additional branch operations. Because these new branches had previously operated independently, the company faced its biggest challenge in folding its people, processes, data and parts into one centralized service network for all its company-owned stores.

Under the old system, service technicians would complete work orders in the field and often delay sending paper tickets to the back office for processing until weeks after the work was completed. With such a gap between work completion and order closure, discrepancies in service issues, billable hours, and parts used often went unresolved, preventing back-office personnel from invoicing customers accurately for completed service.

Best Practices in Strategic Service Management

Company Name

IR Hussmann Corporation
([www.IR Hussmann.com](http://www.IR.Hussmann.com)),
an Ingersoll-Rand company

Solution Provider

FieldCentrix (www.fieldcentrix.com)

Business Challenge

A disjointed approach to field service and lack of automation in work order management resulted in decreased technician productivity — and threatened to erode customer satisfaction.

Strategy

Increase productivity, grow revenues, and edge out competitors by automating field service operations and reporting, extending communication and transaction capabilities to the field, and increasing service offerings.

Value Achieved

- Reduced time-to-invoice by 50% on 80% of the invoices.
- Improved technician productivity.
- Consolidate 20 branch dispatching sites and 20 invoice sites; eliminated 18 after-hours answering services.
- Reduced usage of non-stock part numbers on tickets from 70% to 20%.



A reliance on manual and paper-based processes also had service employees re-keying work order details and customer information into a user interface that was not optimized for sound business processes. Service personnel often logged five or more phone calls per service ticket, with dropped calls and dispatching delays threatening to erode customer service levels.

Post-Sales Service Strategy

Responding to slimming profit margins and increasing customer demands, IR Hussmann embarked on a strategic program to transform its food chain business. The company wanted to increase the level of automation in its field service operations to:

- Promote process excellence;
- Improve operational efficiencies;
- Bolster profitability; and
- Elevate customer satisfaction levels.

Long-term goals for the project included profit enhancement, business diversification, and new product development. These goals dictated that IR Hussmann deploy a solution that would scale across the enterprise and facilitate and accelerate the wide-scale adoption of new business processes and service offerings.

At the outset of its service reengineering program, IR Hussmann identified key criteria for the success of the initiative, including the need for a fully integrated system that would help build stronger lines of communication among field technicians and back-office customer service and financial personnel, standardize contract management, increase technician productivity, and improve service parts planning and sourcing.

Solution Selection and Deployment

In an effort to overcome its field service challenges and better position itself for growth in an increasingly competitive service arena, the company decided to pursue a complete service management system, which would help it automate work order management and establish a more preemptive approach to service delivery.

IR Hussmann partnered with a solution provider to implement a service management solution coupled with mobile functionality, which the company branded the *SmartTech Service System*. Prior to implementation, IR Hussmann conducted a three-month pilot program in its Houston, Texas branch and followed the pilot with a rollout of the solution to its 900 technicians throughout 45 branches shortly afterward.

The solution provides the company with a wireless and Web-based solution for complete service management. Handheld devices provide field technicians with wireless connectivity and the ability to receive work order assignments and close work orders remotely. A Web-based application enables the back-office customer support team to receive and record service calls, schedule and dispatch technicians, and manage customer data. An interface for easily integrating IR Hussmann's AS/400 Branch Service System with field technicians' mobile devices allows technicians to report on work order status in real-time; it also eliminates the step of manually re-entering work order status data in the invoicing system after the fact.



The solution also provides IR Hussmann's customers with a Web portal for self-service. This service portal allows customers to track the status of work orders, access past history, and submit service requests online.

The *SmartTech Service System* took approximately two years to implement after the pilot, and the solution is now fully integrated and operational within all of IR Hussmann's North American branches.

Results

The most compelling benefit of their service automation initiative, according to Naimesh Davé, IR Hussmann's manager of field service automation, has been the marked uptick in the company's competitive advantage. "Not many other contractors in this space have a system in place to provide customers with tracking and reporting functionality," notes Davé. "This is a big value-add, which has helped us win customers and allowed us to justify the price differential over the competition."

The solution has enabled IR Hussmann to provide additional value-add for customers through its customer self-service initiative. The Web portal provides IR Hussmann service personnel with frequent feedback from customers, enabling the company to better address customer needs and improve customer satisfaction and retention.

As a result of the *SmartTech Service System*, IR Hussmann is now providing customers with cleaner tickets, timelier invoices, and clear reporting and analysis capabilities including reports on preventive maintenance and percent breakdown by problem type. These services help customers better target key issues and improve their business processes — and have been instrumental in IR Hussmann's ability to increase customer retention and impact top-line revenue.

For its part, IR Hussmann has seen improvements in its own business processes as a result of the service automation project including a more streamlined payroll process, the ability to track branch performance metrics, and easier access to customer data through the company's centralized equipment database.

In addition to top-line and competitive gains, IR Hussmann has been able to increase overall productivity to drive measurable bottom-line impact. The company saw an increase in worker productivity due in part to dramatic reductions in technician travel time. Dispatchers that were previously managing a maximum of 20 field service employees now can manage up to 30 technicians, due to automated work order management and allocation. Order-to-cash cycles have shrunk significantly as IR Hussmann has reduced time-to-invoice 50% on 80% of the orders by equipping field technicians to complete work orders in the field.

IR Hussmann was also able to consolidate its branch offices by region, consolidating 20 branch dispatching sites and 20 invoicing sites. Because of the solution's 24/7 call center capabilities, IR Hussmann was able to eliminate its 18 after-hours answering services, which resulted in hard-dollar cost savings.

Lessons Learned

One of the keys to IR Hussmann’s continued success with its service management strategy has been its proactive technician training program, which has helped the company gain buy-in for the new approach to servicing customers.

Following the deployment of the *SmartTech Service System*, IR Hussmann rolled out its Tech-Ed Program to increase awareness of work order processes and promote accountability among technicians. By creating a program that gives service engineers a sense of ownership in their roles, IR Hussmann establishes them as change agents and places them in a position to drive the company’s profitability.

The program promotes aftermarket parts purchase, emphasizes the importance of clean tickets, reduces callbacks, increases contract knowledge, identifies revenue growth opportunities, emphasizes safety best practices, and teaches technicians how to maximize their personal performance. In fact, since implementing the Tech-Ed program, IR Hussmann has seen a vast increase in the number of clean tickets processed: the percentage of tickets with non-stock part numbers was reduced from 70% to 20%.

Future Outlook

IR Hussmann plans to continue to hone its business processes and leverage the *Smart-Tech Service System* for further operational efficiencies and higher levels of customer service. It is pursuing GPS integration in its mobile devices to enable dynamic technician dispatch and real-time visibility of technicians and work order status. IR Hussmann is also continuing to partner with its solution provider to put together a custom solution that will provide technicians with real-time views of their on-truck spares inventory for improved service parts management and customer responsiveness.

IR Hussmann Competitive Maturity Profile

	Laggards	Industry Average	Best in Class
Process	Execute work activity in the field through worker knowledge; reconcile activity after the fact	Execute work activity in the field through worker knowledge; update work orders and handle invoice reconciliation in the field.	Execute work activity by applying organizational expertise, updating work orders and contracts, and reconciling invoices in the field.
Organization	Irregular, ad hoc collaboration among a few stakeholders	Regular ad hoc collaboration among most stakeholders	Real-time collaboration among all stakeholders



	Laggards	Industry Average	Best in Class
Knowledge Management	No stakeholder (executives, call center, dispatch center, parts depot, field technician) has the most current and accurate view of inventory, contract, resolution, and other service-related data	Visibility into inventory, contract, resolution, and other service-related data declines in currency and accuracy, moving from call center to dispatch center to field technician	All stakeholders (executives, call center, dispatch center, parts depot, field technician) have on-demand or real-time access to the same inventory, contract, resolution, and other service-related data
Technology	Paper or spreadsheet-based status and tracking tools	Desktop Web and email-based status, tracking, order-processing, and communication tools; cell phones	Handheld/mobile Web and email-based status, tracking, order-processing, and communication tools; cell phones
Performance Measurement	Level of service optimization not systematically tracked and measured	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first call resolution rate, work orders completed per technician, per day)	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first call resolution rate, work orders completed per technician per day) and customer-facing metrics (e.g., service revenue growth, customer retention, SLA compliance)

Komax Corporation Powers Data-Driven Performance with Service Management Solution

Business Challenge

In spite of its global reach and complex product lines, Switzerland-based Komax Corporation lacked a formalized service management process. The company manufactures and supplies cut and strip, crimp to crimp, harness, and other wire processing machines to the automotive, appliance, and electronics industries. Komax operates production facilities in Switzerland, the U.S., Portugal, France, and China. It also maintains a global distribution and service network.

The company's service personnel were grappling with a disjointed and constrained set of processes that were starved for current and accurate data on customers, equipment, and work order histories. Komax relied on largely manual and error-prone processes for managing its 2,800 annual incoming service calls, tracking warranty information at the machine level, tracking billable and non-billable work remotely from the field, and providing timely resolution to service issues.

Many of its machines had 10 to 15 years of critical performance and service data that had been sporadically captured in static databases. As such, it was extremely difficult for new technicians to access complete machine histories — an all-too-common scenario in a workforce subject to high turnover rates.

Because technicians did not always have immediate access to service data while working at a customer site, they were often unable to work productively in the field. In order to access service information housed in Komax's database, technicians had to first find a dial-up connection, which was often unavailable or provided extremely slow connectivity. As a result, technicians

Best Practices in Strategic Service Management

Company Name

Komax Corporation (www.komaxusa.com)

Solution Provider

Single Source Systems
(www.singlesrc.com)

Business Challenge

Disjointed service management processes resulted in incomplete tracking of customer data, decreased productivity in the field, and caused declining customer service levels.

Strategy

Capture, normalize, and communicate current customer, asset, warranty, and other business data across the enterprise, leveraging a service management solution, integrated with current ERP system. Goals: to improve customer retention, increase field technicians' connectivity and productivity.

Value Achieved

- Faster work order resolution
- More efficient call scheduling and technician deployment
- Improved reporting and tracking capabilities
- Competitive differentiation and increased product sales



lacked the ability to access machine history on-site and transmit status data from a service visit back into the system in a timely manner.

Post-Sales Service Strategy

Komax knew it needed to synchronize information flow among its service technicians and back-office personnel to maximize productivity and provide customers with the highest service levels possible. The company also wanted to reengineer its processes and IT systems so its service personnel could more easily track service calls as they came in, and record customer information, which technicians could then access on the job site.

Komax outlined key criteria for success, including finding a solution that would provide greater tracking and reporting capabilities but would not prove cumbersome for field technicians to use. Having previously logged service calls manually on its internal database, Komax needed a solution that would integrate smoothly with its existing Infor SyteLine ERP system and provide timely knowledge transfer between service technicians. Most importantly, Komax laid out an enterprise-wide data management approach, whereby customer, product, and service data would be normalized across billing, financial, service, and other business units and processes.

Solution Selection and Deployment

After conducting an exhaustive search for a solution to support this data-driven service strategy, Komax selected the SM-Plus solution from Single Source Systems. The system easily integrated with Komax's current ERP software, eliminating the need for technicians and service personnel to enter data into two separate interfaces.

The implementation also provided Komax with an incident maintenance module, which allows service personnel to track machine repairs and keep detailed records of machine maintenance and warranty information. Service orders are also logged through the system and dispatched to the appropriate technician in the field.

The added integration of SM-Plus Mobile allows Komax's service engineers to take all necessary customer information on the road with them. With hand-held access to historical customer, asset, and warranty data while working on-site, technicians can diagnose and resolve service issues more quickly and accurately. Further, they can close out service calls immediately, instead of waiting to return to the office, which speeds payment cycles, maintains more accurate business data, and ultimately leads to higher customer service levels.

To better handle service inventory logistics, Komax integrated its service management system with UPS Worldship, which enables service workers to generate more accurate shipping information without having to re-enter customer information into multiple systems.

Results

Komax managed to rebuild its post-sales service processes on the foundation of accurate, up-to-date, and universally accessible business data. Supported by the added technology capabilities afforded by Single Source, MAPICS, and UPS, this new approach to service



delivery has led to benefits such as increased technician productivity, lower overall service costs, shorter order-to-cash cycles, and higher levels of customer satisfaction.

Komax is managing service calls more efficiently and providing customers with faster turnaround time for work order resolution. In addition, the integration of the service management system with Komax's current ERP system allows for service parts planning and helps drive stocking levels to provide customers with more predictable and timely availability of spare parts.

By providing service personnel with the ability to easily track calls and capture customer data, the solution has also enabled the company to benchmark more than 10 years of machine data in its database, enabling knowledge transfer between technicians.

Finally, Komax has been able to differentiate itself from competitors based on its service performance. "Service is what makes us the best," said Chris VonEhrenkrook, Komax's manager of information technology. "Service supports sales. If we can provide good service, our customers will buy more machines."

Lessons Learned

When embarking on launching a set of mobile field service capabilities, Komax clearly identified its requirements in two critical areas: the robustness and frequency of connectivity the field service operation required, and an intuitive user-interface and workflows so that technicians could easily learn and use the system.

Komax evaluated how much "lag time" the company could live with and still achieve operational performance and customer satisfaction targets. Given the extended duration of many of its service calls — some lasting days or even weeks — the company determined that real-time data synchronization among field technicians and back-office workers and systems would overcomplicate its service operation. By establishing a user-friendly and performance-oriented system without the complications of excess connectivity, Komax helped ensure success of the project among all users.

Future Outlook

Komax is currently working with Single Source to integrate an online procurement system into the solution. This system would enable spare parts purchasing, eliminate manual order entry, streamline the invoicing process, and provide an online channel for customers like Leer, Alcoa, and Delphi to purchase parts directly.



Komax Competitive Maturity Profile

	Laggards	Industry Average	Best in Class
Process	Execute work activity in the field through worker knowledge; reconcile activity after the fact	Execute work activity in the field through worker knowledge; update work orders and handle invoice reconciliation in the field	Execute work activity by applying organizational expertise, updating work orders and contracts, and reconciling invoices in the field.
Organization	Service is viewed as purely cost, and there is no discrete management or P&L for service operations	Director-level executive oversees cost-cutting and productivity targets for service operations; corporate culture is based on customer satisfaction, but there are no customer satisfaction targets or incentives for service workers	Vice president or higher level executive oversees profit-and-loss (P&L) for service operations; service workers receive compensation incentives for achieving customer satisfaction targets
Knowledge Management	No stakeholder (executives, call center, dispatch center, parts depot, field technician) has the most current and accurate view of inventory, contract, resolution, and other service-related data	Visibility into inventory, contract, resolution, and other service-related data declines in currency and accuracy moving from call center to dispatch center to field technician	All stakeholders (executives, call center, dispatch center, parts depot, field technician) have on-demand or real-time access to the same inventory, contract, resolution, and other service-related data
Technology	Paper or spreadsheet-based status and tracking tools	Desktop Web and email-based status, tracking, order-processing, and communication tools; cell phones	Handheld/mobile Web and email-based status, tracking, order-processing, and communication tools; cell phones

	Laggards	Industry Average	Best in Class
Performance Measurement	Level of service optimization not systematically tracked and measured	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first call resolution rate, work orders completed per technician, per day)	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first call resolution rate, work orders completed per technician, per day) and customer-facing metrics (e.g., service revenue growth, customer retention, SLA compliance)



Roto-Rooter Tracks Down Field Force to Smooth out Service Chain Stoppages

Business Challenge

With 1,800 service technicians bringing in more than \$250 million in annual revenue, Cincinnati, Ohio-based Roto-Rooter Services Company recognized a massive opportunity to slash service costs and bolster sales by upgrading its field service operations. As the largest provider of plumbing and drain cleaning services in North America – with 110 company-owned territories and more than 500 franchise territories – Roto-Rooter boasts a vital repair and service operation that accounts for the majority of the company’s revenue.

Roto-Rooter considers itself an emergency service provider, with average service cycles of two hours or less. “Our service isn’t usually a purchase our customers plan for,” said Steve Poppe, chief information officer at Roto-Rooter. “So when an emergency occurs, having to pay the plumber is a bitter pill to swallow.”

As such, customer requirements for reliable service come with an added level of urgency. “Our customers will seek service elsewhere if we fall short,” added Poppe.

Until 2003, Roto-Rooter lacked visibility into the activity of its field force of 1,800 service technicians. The company relied on manual telephone-based communications among dispatchers and technicians in the field to dispatch new jobs and to close out completed jobs.

Since dispatchers could not see or track where field technicians were at any given time, they often allocated work orders with no knowledge of optimal resource deployment. Further, service workers were spending a significant amount of time idle, waiting for their next assignment, which eroded Roto-Rooter’s overall service coverage and productivity.

Best Practices in Strategic Service Management

Company Name

Roto-Rooter (www.rotorooter.com)

Solution Providers

Gearworks (www.gearworks.com) and Nextel (www.nextel.com/en/solutions/field_services.shtml)

Business Challenge

Manual communications among dispatchers and technicians and the lack of visibility into field workers’ locations lowered productivity and heightened operational costs.

Strategy

Equip dispatchers to match technicians with work orders in real time, with the help of a GPS-enabled mobile technology solution that integrates with the company’s CRM system.

Value Achieved

- Consolidated call centers from 50 to 3
- Reduced credit card processing fees by \$500K annually
- Eliminated paper forms for annual savings of \$140,000
- Improved customer satisfaction and retention rates



Service Strategy

Roto-Rooter set an objective to elevate its customer service levels through more efficient scheduling and deployment of its field force. By providing customers with a smaller window of time in which to expect service, Roto-Rooter hoped to improve customer retention and increase sales.

The company decided to upgrade its technology systems to improve communication and visibility within its mobile field service operations, which it hoped would lead to reduced latency in the service process and healthier profit margins. This would require a robust mobile application that could integrate seamlessly on the back-end with Roto-Rooter's home-grown AS/400 dispatching system.

The company identified key requirements for success including a solution that would integrate with the company's existing customer relationship management (CRM) software and enable compatibility with multiple mobile devices. The devices themselves also needed to accept remote and automatic software upgrades to facilitate alignment between field and back-office systems.

Solution Selection and Deployment

After a seven-year search for a solution that met its requirements, Roto-Rooter finally selected Gearworks' etrace[®]: worksmart edition, a hosted mobile field service application, deployed on Nextel's i58sr[™] mobile phones. Roto-Rooter launched the mobile workforce management solution in April 2003, and has undertaken a gradual market-by-market roll-out of the system. Soon all 1,800 of its technicians (at company-owned branches) will be linked to the system.

The solution allows dispatchers in centralized dispatch centers to pinpoint drivers and work sites in multiple regions, and also to view the status of all jobs in progress. The system allows technicians to send messages, update their job status, and report GPS-mapped locations back to dispatchers and call center workers. Customer service representatives and dispatchers are then able to track technicians' locations on a digital map and route new service requests more efficiently.

Using a "bread-crumbing" feature, Roto-Rooter can also track each driver's travels throughout any given day, which allows supervisors to analyze the dispatchers' performance and compliance with company objectives over time.

Following the initial deployment of etrace: worksmart edition, Roto-Rooter is expanding the integration to include wireless credit-card readers and portable printers on field workers' toolkits. This functionality allows technicians to take payments on-site and leave customers with an invoice.

Roto-Rooter captures and stores sales information, payroll, and day-to-day operations data on its local servers, while Gearworks regularly purges temporary transactional data from the servers in order to keep the system as lean as possible.

Results

Roto-Rooter noted a number of hard-dollar and soft-dollar benefits that have contributed to a quantifiable return on investment (ROI). To start, the company has seen a reduction in average job close-out times from 20 minutes to 90 seconds. In addition, it has been



able to deliver higher levels of customer service by executing on more precise scheduling for repairs and more efficient deployment of technicians by geography and skill set.

By equipping its field workforce with Nextel mobile communication devices, Roto-Rooter has observed a dramatic reduction in service schedule latencies and an increase in work orders completed per day, per field worker. As a result, the company has seen a dramatic increase in total revenue earned per wireless-enabled field worker.

When Roto-Rooter consolidated its 50 call centers down to just three, it became increasingly necessary to know exactly where its plumbers were and the status of their availability at all times. The advantages of the GPS system were immediately recognized. And the wireless credit-card readers are on track to provide the company with an annual reduction in credit card processing fees of \$500,000. The total solution is also helping Roto-Rooter eliminate paper forms, for savings of \$140,000 per year.

Lessons Learned

Roto-Rooter knew that more aggressive customer satisfaction and retention objectives would be required for it to stay competitive, and that it would need to expand and upgrade its existing technology profile to achieve these objectives. By adopting a customer-centric mentality and striving for value-added services, the company has been able to achieve marked gains in customer retention and overall satisfaction.

Buy-in from senior executives was invaluable to the success of the etrace: worksmart edition implementation, according to Steve Poppe. He acknowledged the reluctance of the plumbing industry as a whole to adopt certain technologies, and he suggested that this approach needs to change in order for service providers to remain competitive and grow their businesses.

Roto-Rooter Competitive Maturity Profile

	Laggards	Industry Average	Best in Class
Process	Execute work activity in the field through worker knowledge; reconcile activity after the fact	Execute work activity in the field through worker knowledge; update work orders and handle invoice reconciliation in the field.	Execute work activity by applying organizational expertise, updating work orders and contracts, and reconciling invoices in the field.
Organization	Irregular, ad hoc collaboration among a few stakeholders	Regular ad hoc collaboration among most stakeholders	Real-time collaboration among all stakeholders

	Laggards	Industry Average	Best in Class
Knowledge Management	No stakeholder (executives, call center, dispatch center, parts depot, field technician) has the most current and accurate view of inventory, contract, resolution, and other service-related data	Visibility into inventory, contract, resolution, and other service-related data declines in currency and accuracy moving from call center to dispatch center to field technician	All stakeholders (executives, call center, dispatch center, parts depot, field technician) have on-demand or real-time access to the same inventory, contract, resolution, and other service-related data
Technology	Paper or spreadsheet-based status and tracking tools	Desktop Web and email-based status, tracking, order-processing, and communication tools; cell phones	Handheld/mobile Web and email-based status, tracking, order-processing, and communication tools; cell phones
Performance Measurement	Level of service optimization not systematically tracked and measured.	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first call resolution rate, work orders completed per technician, per day)	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first call resolution rate, work orders completed per technician per day) and customer-facing metrics (e.g., service revenue growth, customer retention, SLA compliance)



Tellabs Boosts Customer Service with Spare Parts Management Program

Business Challenge

Wireless and wireline network solutions provider Tellabs used to handle its service business by provisioning initial spare parts along with original equipment sales, and subsequently selling parts from a central distribution center to enable customers to manage spare parts themselves.

Driven by competitive and market pressures, Tellabs realized the need to offer same-day service contracts to its customers. Tellabs heard a consistent message from its customer base: customers wanted spares within two to eight hours, but did not want to own obsolescing spare parts or the responsibility of managing, storing, and delivering them. With its existing spare parts management approach, Tellabs could not meet these requirements.

Tellabs designs, develops, deploys, and supports wireless and wireline network solutions for telecommunications companies such as BellSouth, Cable & Wireless, MCI, and Verizon. The Naperville, Ill.-based company employs about 3,700 people and deploys equipment in almost 100 countries.

Post-Sales Service Strategy

To respond effectively to these customer requirements and heightened competitive pressures, Tellabs embarked on building a network of strategic parts centers and the logistics infrastructure to provide parts to customers in very short timeframes. This decentralized depot-based strategy would require jettisoning its existing centralized distribution strategy.

Tellabs also needed a disciplined approach to stock level planning and positioning and spare parts management. This need called for a forecasting tool that could offer stocking level recommendations in real-time, provide the service levels customers required, and help Tellabs and its clients meet their contractual obligations.

Best Practices in Strategic Service Management

Company Name

Tellabs, Inc. (www.tellabs.com)

Solution Providers

MCA Solutions (www.mcasolutions.com) and DHL Logistics (www.dhl.com/publish/g0/en/services/logistics.high.html)

Business Challenge

Little visibility into spare parts logistics management and an ad hoc approach to parts management added unnecessary inventory and hindered ability to offer same-day customer contracts.

Strategy

Outsource spare parts inventory logistics processes and implement a real-time forecasting tool that would enable stock level planning and increased customer service levels, and help clients meet contractual obligations.

Value Achieved

- 60% inventory reduction
- \$5 million in savings virtually overnight



Solution Selection and Deployment

Tellabs decided that the best way to stay focused on its core products and to ensure consistent compliance with customer requirements was to outsource its entire spare parts planning, storing, and distribution process. After reviewing numerous requests for proposals (RFPs), Tellabs selected a combined solution from MCA Solutions and DHL Logistics.

This old world/new world tandem teamed up to provide Tellabs with a robust service supply network consisting of strategically located parts centers supported by parts center provisioning, inventory forecasting, and contract coverage analysis. Tellabs chose the combined solution with the specific goal of meeting or exceeding the terms of same-day service contracts.

Tellabs runs a successful deployment of SAP's enterprise resource planning (ERP) system, so one critical requirement met by MCA's Service Planning and Optimization™ (SPO) software was integration with SAP. In addition, Tellabs needed the software to integrate with DHL's fulfillment system to provide end-to-end monitoring and management of mission-critical spare parts.

In September 2003, Tellabs finalized its decision to work with MCA and DHL; within two months, DHL had set up five warehouses, completed the integration with Tellabs' SAP system, and implemented the forecasting and inventory planning module.

In the first phase of the rollout, the solution was implemented for one critical customer covering two critical product lines. To date, the implementation has rolled out to additional customers and product lines at 20 DHL locations, including four in Europe.

MCA now continues to host the total solution environment for Tellabs. MCA supplies inventory forecasts based on the customer's embedded base, provides contract coverage analysis, and determines where to position spare parts most effectively to meet customers' requirements.

Results

Tellabs architected a new set of business processes to govern its spare parts operations, which required new strategic parts locations, revamped its logistics processes to deliver expanded service to customers, and improved its reporting capabilities.

MCA's solution supported these business process changes by providing Tellabs with a hosted software solution for forecasting and planning of parts in the new network, and DHL Logistics fulfilled its role in the process evolution by handling warehousing, transportation, and logistics. As a result, Tellabs is realizing a wealth of top- and bottom-line benefits.

While Tellabs previously did not have any ability to measure service levels, through intelligent outsourcing and effective software deployment and integration, the company is now delivering highly improved service to its customers much more rapidly than if the

Upon completion of the solution and business process deployment, Tellabs saw an initial service parts inventory reduction of more than 60%, which amounted to \$5 million in savings virtually overnight.



company had managed the transformation with internal resources and systems. Currently the company reports service levels at approximately an aggregate of 98%. Further, on completion of the solution and business process deployment, Tellabs saw an initial service parts inventory reduction of more than 60%, which amounted to approximately \$5 million in savings virtually overnight.

Leveraging the MCA/DHL solution, Tellabs now can offer its customers spares fulfillment windows of 2, 4, and 8 hours, making use of field inventory locations within close proximity to customers. Further, the company has also outsourced the “advance exchange program,” whereby if a part fails and the customer does not have a spare on site, a good unit is sent to the customer in advance of the defective unit being returned. The customer can then return the defective part directly to DHL for dispositioning, repair, or redeployment instead of waiting 10 to 15 days for a repair cycle.

“Our global business is growing because we are doing our jobs better and providing improved service,” said Ricardo Gonzalez, customer logistics, Tellabs.

Tellabs is also reducing inventory carrying and other service costs by pooling spare parts inventories to support multiple customers.

“I know today where everything is located, and I understand the associated risks,” said Gonzalez. “I know where and why I need to increase or decrease inventory, and I know what my installed base looks like.”

This data visibility has raised customers’ confidence levels dramatically and has, in part, accounted for the overall improvement in customer satisfaction.

Lessons Learned

Tellabs knew it needed to improve its customer relationships by offering same-day service contracts. By measuring and benchmarking service levels, the company realized it could bring on more business and reduce costs as a function of this increase in sales.

Future Outlook

Looking ahead, Tellabs will continue to utilize and expand the MCA/DHL solution for spare parts planning and distribution; the company expects to leverage its spares management program to edge competitors, win new customers, and drive overall profitability. As Tellabs introduces new product lines, it anticipates that customer requirements for same-day service will continue to intensify. Tellabs therefore will look to further enhance the roles of both DHL and MCA in the Spares Management program and in streamlining the service chain to provide high levels of service to its customers worldwide.

Tellabs Competitive Maturity Profile

	Laggards	Industry Average	Best in Class
Process	Limited to no forecasting or planning of spares stocking levels or depot locations; heavily reliant on safety stocks to fulfill service level commitments	Sporadic forecasting and planning of spares stocking levels and depot locations; use centralized distribution hub, channel partners, and safety stocks to fulfill service level commitments	Programmatic forecasting and planning of spares stocking levels and depot locations; leverage distributed stocking locations to meet customer expectations at lowest total service/inventory costs.
Organization	No executive focus on deriving revenues and profits from service parts	Strategies for service-driven revenues and profits are secondary to product-driven strategies	Executives' primary focus is on deriving revenues and profits from service parts
Knowledge Management	Limited or no view into part-specific demand trends, consumption patterns, delivery histories, etc.	Some business data is captured and stored in a decentralized fashion, providing time-delayed visibility to stakeholders	Single, real-time, normalized view into part-specific demand trends, consumption patterns, delivery histories, etc.
Technology	Primary tools are spreadsheet-based	Primary tool is enterprise resource planning (ERP) or comparable solution	Primary tools are parts planning software, integrated with internal or 3PL-operated logistics infrastructure
Performance Measurement	Service parts delivery performance not consistently measured	Service parts delivery performance measured on a functional unit basis	Service parts delivery performance measured on business process- or enterprise-wide basis



Triton Reaches New Customer Satisfaction Heights on Shoulders of Rebuilt Service Processes

Business Challenge

For Triton Plc, a UK-based manufacturer of domestic electric, power, and mixer showers, 50% of its total sales are to existing customers, so post-sales service can make or break the company's top-line performance.

With 423 employees – 100 in the service department – and 1.3 million serviceable units, Triton runs a high-volume, low-value transaction service business, administering 20,000 extended warranty customers and fielding 35,000 service calls per month.

Historically, the company viewed its service department as a cost center to the business, so little investment was made in crafting efficient business processes or automating administrative tasks. Service orders were taken manually over the phone and processed en masse after the fact.

Using an in-house calendaring system and an outdated accounting application, dispatchers were only able to answer about one-third of incoming calls within the targeted 12 seconds — and then spent an average of 17 minutes per call diagnosing the problem and allocating service resources.

To make matters worse, Triton made significant recurring upgrade investments in its existing business systems, but the applications remained inflexible and time consuming for call center employees to access customer information and schedule service appointments.

As a result of these operational and technological challenges, Triton's service technicians were severely limited in their productivity, service levels were unpredictable at best, and the company's overall performance was at risk.

Best Practices in Strategic Service Management

Company Name

Triton Plc (www.tritonshowers.co.uk)

Solution Provider

Computer Software Group – Pinnacle (www.computersoftware.com)

Business Challenge

Inefficient order processing, technician scheduling, and data management were limiting productivity and eroding customer satisfaction

Strategy

Overhaul all service processes and leverage optimization and mobile solutions to increase field technicians' productivity and improve overall customer satisfaction

Value Achieved

- Reduced call processing time from 17 minutes to 3 minutes
- Decreased spares stock levels by 15%
- Answer 74% of service calls within 12 seconds
- Close 72% of service calls within 5 days
- Dispatch 98% of spare parts deliveries same-day
- Drove new service-based revenue stream



Post-Sales Service Strategy

With Triton's service operations accounting for 25% of its overall business, the company knew it needed to develop a customer-centric culture and revisit its business processes in order to better position itself for long-term growth. To accomplish this, the shower manufacturer set out to improve specific areas of deficient performance, such as time spent on customer service calls, work order taking and scheduling procedures, and order resolution speed.

Before long, Triton service managers realized that the company stood to realize significant cost savings and performance gains from leveraging a technology-enabled approach to post-sales service. Triton assembled a steering committee comprising managers as well as dispatchers, technicians, and other stakeholders in the service operation to define detailed requirements for the company's new service-oriented vision.

"The committee enabled our people to take ownership of the process," said Graham Neve, Triton's general manager of service. "After all, it was going to be their system, so it was important to involve them in the requirements gathering process and gain their buy-in from the start."

The steering committee spent nine months rethinking and, in nearly every case, re-architecting its service delivery and management processes. Triton identified and prioritized its key success criteria in a 30-page document that it distributed to potential solution providers. The document encompassed all the current and future needs of the service operation — including the need for a best-in-class, "off-the-shelf" application that would not require extensive customization and could be upgraded unilaterally.

Solution Selection and Deployment

After extensively researching the market and reviewing a variety of possible solution providers, Triton conducted site visits and identified potential incompatibilities with various vendors. In the end, the company selected Computer Software Group's (CS Group) Pinnacle solution because it provided capabilities closely aligned with the company's departmental needs. The solution was deployed in two main phases: call processing management and field mobile data.

Phase one began in April 2000 with the implementation of CS Group – Pinnacle's Service Director[®] field service management solution, which went live in December 2000. The scheduling automation application allowed Triton to maximize work order scheduling options based on technicians' skills and availability, as well as contractual obligations and customer priorities.

During this stage of the implementation, Triton also worked with CS Group – Pinnacle to develop a sales order processing module that met the company's specific requirements. The sales order function would allow Triton to automate credit card authorization online with customers so that any payment issues could be immediately identified and resolved. Previously, the company relied on manual processing for credit card payments, batching up orders from end users and sending them to the bank for credit card processing. Bounced orders were handled manually, resulting in excess time spent on processing orders and a significant loss in productivity.



Phase two of Triton's technology roll-out, focusing on distributing critical business data to workers in the field, began in May 2002 and went live in October of that year. The deployment utilized the Cognito mobile data network and required significant changes to the company's previous service order and data management procedures.

Under this mobile data system, call center employees answer service calls and immediately pass customer and order information to field engineers' handheld devices via the Cognito network. The network acts as a real-time information system, providing engineers with all the information they need to respond to customer service requests. Once technicians complete a service visit, they can close the job via their mobile devices and report data such as mileage, time on site, spare parts used, and price to the back office within minutes.

Results

Since the implementation of the CS Group – Pinnacle solution, Triton has seen performance improvements throughout its service operations, including reducing time spent on customer service calls from 17 minutes to 3 minutes, answering 74% of its service calls within the targeted 12 seconds, closing 72% of service calls within five days, and dispatching 98% of spare parts deliveries same-day.

The CS Group – Pinnacle implementation was also successful in improving the company's revenue stream for spare parts by significantly reducing call processing time and increasing customer throughput. Because engineer replenishment orders are now instantaneous, stock levels for both the field and main service warehouses have decreased by 15%.

In addition to making significant strides in increasing efficiencies and reducing overall service costs, Triton has also tapped into service-driven growth opportunities. Thanks to a reduction in administrative tasks and more efficient use of technicians' time, the Triton service organization now has the capacity to entertain opportunities to take over the service workloads of other manufacturers. This has also created a previously untapped revenue stream.

Finally, Triton has enjoyed a vast improvement in reporting capabilities – reducing the time required for activity report processing from one week to 35 minutes. By equipping service engineers with the ability to report data through their mobile devices, the company eliminated the legacy process of re-keying customer information into work order scheduling systems, thereby reducing administrative costs and improving overall productivity.

Lessons Learned

By approaching its service operation as a vital source of aftermarket business, rather than purely a cost center, Triton was able to change its business processes to achieve strategic operational goals. Adopting a mission statement that began, "The quality of our service is the quality of our company," Triton decided to completely redesign its service processes to optimize productivity and customer satisfaction.

Triton understood that no technology solution by itself could sustain the company's long-term performance goals without sound business processes to back it up, so Triton cleaned the slate and partnered with CS Group – Pinnacle to reengineer all of its processes. Not a

single process is the same today as it was five years ago, according to Triton’s Neve. By realigning its service operation to maximize the impact of the technology, Triton was able to realize expedient returns on its investment and eliminate costly latencies in its service operation.

Critical to Triton’s success has been its continual communication and negotiation with all departments and stakeholders throughout the project to ensure buy-in at all levels of the company. Through the development of the steering committee, Triton was able to distribute ownership among employees and directly involve them in optimization efforts.

Future Outlook

Looking forward, Triton plans to implement further enhancements to the CS Group – Pinnacle solution, which will involve the integration of GPS tracking and satellite navigation for field service operations. The company also plans to expand the system to allow for real-time viewing of component information and bill of materials on the engineers’ hand-held devices.

Triton’s Competitive Maturity Profile

	Laggards	Industry Average	Best in Class
Process	Work schedules are fixed daily and manually adjudicated by dispatchers or schedulers	Work schedules are optimized one service order or one constraint at a time	Work schedules are optimized by considering all service orders against all constraints and total technician capacity simultaneously
Organization	Service is viewed as purely cost, and there is no discrete management or P&L for service operations.	Director-level executive oversees cost-cutting and productivity targets for service operations; corporate culture is based on customer satisfaction, but there are no customer satisfaction targets or incentives for service workers	Vice president or higher-level executive oversees profit-and-loss (P&L) for service operations; service workers receive compensation incentives for achieving customer satisfaction targets



	Laggards	Industry Average	Best in Class
Knowledge	No stakeholder (executives, call center, dispatch center, parts depot, field technician) has the most current and accurate view of inventory, contract, resolution, and other service-related data	Visibility into inventory, contract, resolution, and other service-related data declines in currency and accuracy while moving from call center to dispatch center to field technician	All stakeholders have on-demand or real-time access to the same inventory, contract, resolution, and other service-related data
Technology	Primary technology solution is spreadsheet-based	Primary technology solution is a back-office service management system (SMS)	Primary technology solutions are schedule and route optimizers and mobile field service solutions
Performance Measurement	Level of service optimization not systematically tracked and measured	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first-call resolution rate, work orders completed per technician, per day)	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first-call resolution rate, work orders completed per technician, per day) and customer-facing metrics (e.g., service revenue growth, customer retention, SLA compliance)

Mid-Size Industrial Equipment Company Builds National Footprint with Scalable Service Approach

Business Challenge

For one mid-size company that services industrial equipment, transforming its business from a regional operation to a national presence required first rooting out the processes that limited the company's profitability and growth potential. With more than 30 years in the business and annual service revenues totaling more than \$100 million, the company had a large regional presence serving six states in the Northeastern U.S. But the company lacked a codified process for managing service contract deliverables and relied on predominantly manual service delivery and tracking processes. Due to these constraints, the company simply was not capable of assuming a national presence.

The company looked to standardize its regional service processes and boost its operational efficiencies, while building a foundation for future growth. But the daunting challenge of profitably managing a larger, geographically dispersed organization with more customers, products, services, employees, and complex data had been a deterrent to expansion for years.

Struggling with an antiquated system, this company's service personnel were failing to bill certain customers while billing others in error because manual processes had left invoicing up to subjective interpretation. The outdated system also lacked a centralized contact center and automated technician dispatching, which severely limited back-office service workers' ability to access customers' contract status and make profitable work order allocation decisions.

Best Practices in Strategic Service Management

Company Name

Mid-size industrial equipment service company (name confidential)

Solution Provider

Astea International (www.astea.com)

Business Challenge

Outdated and manual service processes were restricting growth prospects and threatening to diminish customer satisfaction, productivity, and profitability

Strategy

Expand regional business to national level by maximizing workforce productivity, streamlining inventory management, and introducing differentiated service offerings like asset lifecycle management

Value Achieved

- Increased technician productivity from 55% to 70% billable hours
- Improved revenue per technician by 25%
- Reduced time to invoice by 50%
- Increased processing volume by 25%
- Expanded operation from four regional locations to more than 200 locations nationwide



Service Strategy

The company knew that in order to profitably complete a national expansion, it would need to do more with less – in other words, maximize the productivity of its field and back-office service operations without increasing its staff of service dispatchers or billing clerks. But it was not just about bottom-line improvement. The company also sought to build out differentiated service offerings to complement basic equipment maintenance, such as asset-management services for optimizing equipment utilization and value.

Before embarking on a full-scale process reengineering program, company executives clearly defined performance areas where improvement would be critical. As part of this effort, the company identified service and repair logistics as a critical focal point of its service transformation effort. Other areas included service order processing and inventory management. Management also identified other project requirements such as the ability to measure billable hours per technician and revenue per technician on an ongoing basis, and to assign a primary technician based on geography and mechanical skills in order to maximize workload balancing.

To meet these requirements, the company decided to pursue a service management technology strategy that would help to automate its outdated manual processes.

Solution Selection and Deployment

After evaluating the capabilities of various service technology providers, the company selected Astea International to implement the Astea Alliance service management suite. It appeared to the company that this solution would meet most of its outlined goals “out of the box” with minimal customization and ramp-up. Most important to the company was the solution’s functionality in integrated contract management, contact center, field service, logistics, repair depot, and sales-order processing for a user base of less than 100.

The company defined a two-pronged strategic objective for its service reengineering initiative — cost containment and enhanced customer satisfaction — with all other goals secondary, so the company and Astea formed a joint client-vendor team to build the solution to support these goals. The initial testing phase began in May 2001, and the first modules, call center and technician dispatching, were launched in September 2001. The invoicing and repair logistics modules followed, launching in January 2002. And by September 2002, the contract and asset management modules were live and available to the company’s customer base.

Under its asset management program, the company now performs equipment inventory audits, spare parts inventory analyses with recommended stocking levels and logistics management, equipment safety assessments, equipment service, and equipment storage.

The first phase of the technology implementation is currently complete, and the company is now moving on to the second phase: testing technician and customer portals to bolster real-time data capture and customer self-service capabilities.

Results

In the two years since embarking on its service reengineering initiative, the company has expanded from four locations serving six Northeast states to a national presence in its targeted industry segment. By 2004, the company’s network had grown to include 130



offices, more than 200 individual locations, 620 field technicians, and more than 400 service vehicles.

The company has also increased technician productivity from 55% to 70% billable hours and improved revenue per technician by 25%. The company has reduced its time-to-invoice by 50% without increasing the number of billing personnel, and has seen more than 25% growth in processing volume. As a result, customers are happier, invoices are generated and paid quicker, and personnel are better equipped to handle future increases in transaction volume.

Customers have also realized qualitative benefits from the solution, including more timely and accurate invoices, more comprehensive reporting of equipment lifecycle costs, improved service delivery performance and follow-through, and the ability to use a single toll-free access number in support of all of their equipment needs.

Lessons Learned

The company's project managers attribute the success of its service overhaul effort in large part to the enhanced accountability and ownership assumed by stakeholders throughout its service operations. With 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 service organization from a regional to national business in less than two years.

Another factor contributing to the success of the new strategy and technology solution was the company's emphasis on customer-facing metrics. By measuring performance not only in the context of internal operational efficiency, but also with regard to value delivered to the customer, the company significantly improved customer satisfaction and gained market share.

Future Outlook

Presently, the company handles more than 300,000 calls annually; this number will continue to grow as the company increases its bases of customers, equipment, and service offerings. Looking forward, the company will continue to expand its national service business and utilize its integrated technology infrastructure to support these efforts. From a technology perspective, the company is investigating functionality enhancements such as an upgrade to Astea's .NET application.



Industrial Equipment Company Competitive Maturity Profile

	Laggards	Industry Average	Best in Class
Process	Execute work activity in the field through worker knowledge; reconcile activity after the fact	Execute work activity in the field through worker knowledge; update work orders and handle invoice reconciliation in the field	Execute work activity by applying organizational expertise, updating work orders and contracts, and reconciling invoices in the field
Organization	Service is viewed as purely cost, and there is no discrete management or P&L for service operations.	Director-level executive oversees cost-cutting and productivity targets for service operations; corporate culture is based on customer satisfaction, but there are no customer satisfaction targets or incentives for service workers	Vice president or higher level executive oversees profit-and-loss (P&L) for service operations; service workers receive compensation incentives for achieving customer satisfaction targets
Knowledge Management	No stakeholder (executives, call center, dispatch center, parts depot, field technician) has the most current and accurate view of inventory, contract, resolution, and other service-related data	Visibility into inventory, contract, resolution, and other service-related data declines in currency and accuracy moving from call center to dispatch center to field technician	All stakeholders (executives, call center, dispatch center, parts depot, field technician) have on-demand or real-time access to the same inventory, contract, resolution, and other service-related data
Technology	Paper or spreadsheet-based status and tracking tools	Desktop Web and email-based status, tracking, order-processing, and communication tools; cell phones	Handheld/mobile Web and email-based status, tracking, order-processing, and communication tools; cell phones

	Laggards	Industry Average	Best in Class
Performance Measurement	Level of service optimization not systematically tracked and measured	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first call resolution rate, work orders completed per technician, per day)	Level of service optimization measured with operational metrics (e.g., ratio of dispatchers to technicians, first call resolution rate, work orders completed per technician, per day) and customer-facing metrics (e.g., service revenue growth, customer retention, SLA compliance)



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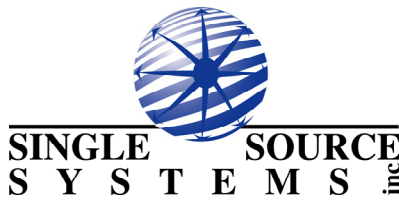


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Mark Vigoroso spearheads primary market research in service management and assesses software and services that automate and streamline these and other value chain processes.

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*.

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Prior to joining Aberdeen Group, Gecker wrote and edited for a variety of business trade publications, including *Inbound Logistics*. She brings a wealth of editorial and industry experience to her role as research analyst, having researched and reported on technology-driven business value for enterprises in the manufacturing, distribution, transportation, and logistics industries.



Appendix A: Research Methodology

In the first half of 2005, Aberdeen Group gathered and evaluated nearly 50 nominated companies for inclusion in this report. To be considered for this year's *Best Practices in Service Management* report, companies or their technology solution provider partners were required to submit written answers to the following questions:

1. What is the company's background: type and volume of assets under service contracts, size of company (employees and revenues), size of field service force, etc.
2. What was the business situation or problem the company was addressing with the service automation solution?
3. Why did the company select its technology solution over competing solutions? What were the criteria used in the decision?
4. What was the scope of the implementation? (This included extent of implementation to date (pilot, general availability, full production), delivery model (hosted vs. premise-based application), time to implement (from start to finish), and the current state of the implementation.)
5. What were the quantitative benefits realized by the company (e.g., increased worker productivity, increased service-based revenues, increased first-call resolution rate, etc.)? Any other benefits gained?
6. How will the company use and, expand the technology solutions in the future?

Based upon an initial evaluation, Aberdeen winnowed down the total pool of nominees to a group of 15 finalists. To select the group of 10 companies profiled as best practices, Aberdeen conducted in-depth telephone interviews with the finalists. Throughout the evaluation process, Aberdeen sought forward-looking companies that have achieved significant performance gains by excelling in areas such as the following:

- **Service Management Processes:** Companies that understand all factors that impact their customers' satisfaction and enforce enterprise-wide service processes that marry service parts planning and distribution with field technician routing and tracking.
- **Organizational Structure:** Companies that have adopted a strategic focus on service management, with revenue and profit goals, and have appointed senior service executives with P&L oversight.
- **Knowledge Management:** Companies that capture critical business data from the field and from related business systems and make it available to all service chain stakeholders in "right time."
- **Technology Usage:** Companies that have appropriately prioritized their service business requirements and have deployed and integrated scalable technology solutions to address these requirements.

- **Performance Management:** Companies that maintain a vision for continuous improvement and track not only day-to-day operational metrics but also longer term strategic metrics.

Solution providers recognized as sponsors of this report were solicited after the fact and had no substantive influence on the direction of *Best Practices in Strategic Service Management*. Their sponsorship has made it possible for Aberdeen Group to make these findings available to readers at no charge.

Table 4: PACE Framework

PACE Key
<p>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:</p> <ul style="list-style-type: none"> • <i>Pressures</i> — external forces that impact an organization’s market position, competitiveness, or business operations (e.g., economic, political and regulatory, technology, changing customer preferences, competitive) • <i>Actions</i> — the strategic approaches 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) • <i>Capabilities</i> — the business process competencies required to execute corporate strategy (e.g., skilled people, brand, market positioning, viable products/services, ecosystem partners, financing) • <i>Enablers</i> — the key functionality of technology solutions required to support the organizations’ enabling business practices (e.g., development platform, applications, network connectivity, user interface, training and support, partner interfaces, data cleansing, and management)



Table 5: Relationship between PACE and Competitive Framework

How PACE and Competitive Framework 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 a company achieves is strongly determined by the PACE choices they make and how well they execute.

Table 6: Competitive Framework

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



Appendix B: Related Aberdeen Research & Tools

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

- *Field Service Optimization Benchmark Report – Part 2* (May 2005)
- *Optimizing Field Service to Achieve Profitability Goals* (March 2005)
- *Managing Service Chain Performance for Competitive Advantage* (February 2005)
- *Next Generation Post-Sales Service Benchmark Report* (December 2004)
- *Mobile Field Service Benchmark Report* (September 2004)
- *Field Service Optimization Benchmark Report – Part 1* (June 2004)

Information on these and any other Aberdeen publications can be found at www.aberdeen.com, or you can inquire by e-mail at memberservices@aberdeen.com.



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Aberdeen delivers unbiased, primary research that helps enterprises derive tangible business value from technology-enabled solutions. Through continuous benchmarking and analysis of value chain practices, Aberdeen offers a unique mix of research, tools, and services to help Global Business Executives accomplish the following:

- IMPROVE the financial and competitive position of their business now
- PRIORITIZE operational improvement areas to drive immediate, tangible value to their business
- LEVERAGE information technology for tangible business value.

Aberdeen also offers selected solution providers fact-based tools and services to empower and equip them to accomplish the following:

- CREATE DEMAND, by reaching the right level of executives in companies where their solutions can deliver differentiated results
- ACCELERATE SALES, by accessing executive decision-makers who need a solution and arming the sales team with fact-based differentiation around business impact
- EXPAND CUSTOMERS, by fortifying their value proposition with independent fact-based research and demonstrating installed base proof points

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