

WHITE PAPER

Quantifying the Return on Investment from Deploying Mobility Solutions in Midsize Businesses

Sponsored by: Microsoft Corp.

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EXECUTIVE SUMMARY

Businesses increasingly are coming to understand the true value of mobile solutions. Improved mobile infrastructure, devices, and technology such as Windows Mobile have matured to the point where it is easy for midsize organizations to deploy and realize benefits in record time.

Midsize companies, with fewer resources to draw on than their larger counterparts, see mobility as a way to level the playing field with bigger competitors and to differentiate themselves from same-size businesses. Mobility allows midsize companies to better serve customers while at the same time improving the productivity of employees and saving costs.

To validate and quantify the business benefits of Windows Mobile within midsize businesses, IDC conducted in-depth interviews with executives at 15 companies ranging in size from 50 to 1,000 employees from various industries in Europe, Australia and the United States. IDC found the following direct benefits in the companies interviewed:

- ☑ The average payback period for the implementation of a Windows Mobile solution in midsize businesses was 7.5 months.
- ☑ The average ROI of a Windows Mobile solution for these companies was 459%.
- ☑ The companies invested an average of \$1,650 per user annually over three years to deploy the mobile solution and were able to achieve annual benefits that averaged \$10,044 per user (see Table 1).

Other tangible benefits companies found in deploying Windows Mobile based solutions include the following:

- ☑ A California winery experienced a 33% increase in sales by deploying a mobile sales force automation solution.
- ☑ A U.K. restaurant chain gained £3,000 per week at each site by equipping its servers with a wireless point of sale application that frees them from having to input orders from a fixed POS station.

- ☒ An Australia-based facilities management company serving retail gas stations has been able to strengthen customer satisfaction, add new clients without expanding its field staff, and improve month-to-month cash flow by optimizing its field service operations using a wireless dispatch system.
- ☒ A Texas refinery uses a mobile field data collection solution to save three-quarters of a million dollars per year by improving field maintenance and avoiding costly plant shut downs.
- ☒ In Spain, a work safety inspection company has improved the productivity of its 400-plus field inspectors by 20% by equipping them with Windows Mobile PDAs that allow them to input data while in the field.

These benefits are further detailed in case studies at the end of the paper.

TABLE 1

ROI Analysis for Deploying Microsoft Mobility Solutions

Item	Average per user
Three-year cost of investment	\$4,950
Annual cost savings and increased revenue	\$10,044
Net present value of three-year savings	\$19,611
Payback period	7.5 months
ROI over three years	459%
Hard-costs-only ROI over three years	212%

Source: IDC, 2006

INTRODUCTION

Mobility Trends

Mobility solutions have gone mainstream. No longer is a mobile project an afterthought, but rather one of a company's more strategic deployments. Benefits include better customer responsiveness, increased employee productivity, enhanced organizational efficiency, and streamlined business processes, all of which can lead to competitive advantages.

The mobile worker population on a global basis is exploding. In 2009, IDC expects there to be 878 million mobile workers worldwide. In today's global, instant-response world, it is important that organizations allow these workers to have important information available wherever they are. The most pervasive mobile application today, email, speaks to the importance of communication within an organization.

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Technology advances in mobility in the areas of software, mobile devices and mobile operator services allow for quicker, less complicated and lower-priced solutions to be deployed in a much shorter timeframe. Additionally, these advances ensure that the solutions are not isolated entities, but integrated, extended components of an existing business infrastructure.

Midsized businesses are seeking to do more with fewer resources. They are asking questions such as: How can we leverage new and innovative mobile technologies without increasing support costs? How can these solutions drive improvements to end users and across a broader set of the company's employee base? How do mobility solutions have a direct impact on my bottom line? Many midsized companies are seeking out mobility solutions as differentiators – a way to play with the largest organizations in the market. Deploying a mobile solution that uses existing technology and skill sets, and requires limited training and manpower is top of mind for this market segment and is leading to the increasing deployment of mobile solutions such as Windows Mobile.

Microsoft Mobility Solutions

Windows Mobile software powers advanced, easy-to-use devices that allow customers to send and receive email, browse the Internet, and work on mobile versions of familiar Microsoft Office software, as well as hundreds of third-party applications.

Today, end users have a choice of more than 100 mobile devices from more than 50 manufacturers and offered through more than 100 mobile operators. With recent announcements of new converged devices including the Motorola Q, the Palm Treo and other popular devices from HP, HTC and others, the market is finally witnessing perhaps the most compelling devices to run on the Windows Mobile operating system.

Furthermore, Microsoft is beginning to put together a broader, more cohesive mobile story as it seeks to deploy mobility not as a separate platform, but rather as an extension of existing business systems. In addition to taking advantage of a customer's initial technology investment in Microsoft Exchange and Microsoft Office, Microsoft can address the needs of midsized customers and larger enterprises alike with mobile versions of products such as SQL Server, Live Communications Server, Microsoft Dynamics CRM, .NET and more. Microsoft partners also deliver a rich offering of Windows Mobile solutions to address a broad range of customer needs. To date there are more than 18,000 available third-party applications representing a range of vertical market segments and horizontal business applications.

In addition to third-party applications, the following Microsoft products were mentioned in customer interviews and are discussed in the customer case studies at the end of this whitepaper:

- ☒ **Microsoft Windows Mobile.** Microsoft Windows Mobile 5.0 is built on the existing power and functionality of the Windows Mobile platform, with broader support for the customization of hardware and solutions, increased productivity, and integrated multimedia. In addition to capabilities such as access to email,

calendar and contacts, and features such as Internet search, Windows Mobile also includes Microsoft Office Mobile so customers can access Word, Excel and PowerPoint documents from their mobile devices. After initial troubles with battery life, crashes, volatile memory, and other complexities, Windows Mobile has entered into a new era where Microsoft has largely solved many of these problems and is able to focus purely on improving the platform's capabilities and user experience.

- ☒ **Microsoft Exchange.** In November 2005, Microsoft announced the availability of Service Pack 2 (SP2) for Exchange Server 2003 that provides enhanced mobile email features for Exchange 2003 customers. Features include Direct Push Technology for email, calendar, contacts, and tasks, enhanced data compression, additional support for Outlook features, and increased device management and security components. This functionality was also rolled into Small Business Server R2 this year.

- ☒ **Microsoft CRM Mobile.** Microsoft CRM Mobile is mobile client software for Microsoft Dynamics CRM that runs on Windows Mobile devices. The client allows mobile users to view and enter data as it relates to account information, contacts, opportunities and activities in a disconnected mode. The data can then be synchronized to the back-end Microsoft CRM server when a data connection becomes available.

QUANTIFYING THE BUSINESS BENEFITS OF MOBILITY

To validate and quantify the business benefits of mobility solutions within midsize businesses, IDC conducted in-depth interviews with midsize customers of Microsoft Exchange and Windows Mobile. IDC asked detailed questions about the implementation costs in deploying the software, and the cost savings and other benefits realized. IDC then applied its proprietary ROI methodology (see Appendix) to the results to determine the average payback period and ROI realized by the surveyed companies.

Study Methodology

For this report, IDC interviewed executives at 15 midsize companies from various industries in Europe, Australia and the United States. The companies included enterprises in healthcare, manufacturing, insurance, professional services, construction, utilities, retail, and agriculture. The companies ranged in size from 50 to 1,000 employees; most had a workforce of less than 500. The company names and contacts were supplied by Microsoft.

From the results of the interviews, IDC determined the average ROI and payback period that the surveyed companies realized from deploying Windows Mobile solutions based on increased user and admin staff productivity, improved operational efficiency, other cost savings, and higher revenue from increased sales.

Survey Results

Indirect Benefits

For many of the companies interviewed the indirect benefits of the Windows Mobile based solutions outweighed the direct, bottom line benefits. Because Windows Mobile helps workers stay connected and responsive, it provides midsize companies with better customer touch and improved customer satisfaction, as well as enhanced efficiencies for many of its processes. Examples of these indirect benefits include the following from the companies interviewed.

- ☒ The Spanish work site inspection company identifies the biggest benefit of the mobile solution as the improved quality of service provided to customers and how it reflects on their organization and its values.
- ☒ The California-based winery reports they have been able to build stronger customer relationships by being able to respond more quickly and in a more informed way with clients.
- ☒ The Australian facilities management firm has been able to strengthen customer satisfaction by reducing the time to respond to problems and the effectiveness with which problems are solved.

The flexibility to meet evolving business needs was another advantage of the Windows Mobile platform. Almost all the companies interviewed used a messaging application along with a third-party application such as CRM. The Windows environment made it easy for companies to adopt mobile versions of existing systems and deploy them to mobile workers with minimal training.

Since Windows Mobile takes advantage of existing technology such as Microsoft Exchange Server, companies also noted that the familiar environment made it possible for IT to use its current knowledge and experience to efficiently roll-out and manage the Windows Mobile infrastructure.

Direct Benefits

Overall, the companies invested an annual average of \$1,650 per user over three years in deploying the Microsoft software, including purchase and installation of Windows Mobile devices, Microsoft Exchange, and related software, as well as IT support, training and maintenance.

For the customers surveyed, the total annual benefits averaged \$10,044 per user. IDC accounts for the opportunity costs realized by not having invested the initial amount in some other instrument yielding a 12% return. This results in a net present value for the three-year savings of \$19,611 per user.

The payback period from deploying the Microsoft mobility solution averaged 7.5 months for the companies surveyed, yielding an average ROI of 459%. Using only the annual cost savings of \$5,559 per user, the net present value amounts to \$9,052 per user, yielding a hard-costs-only ROI of 212%.

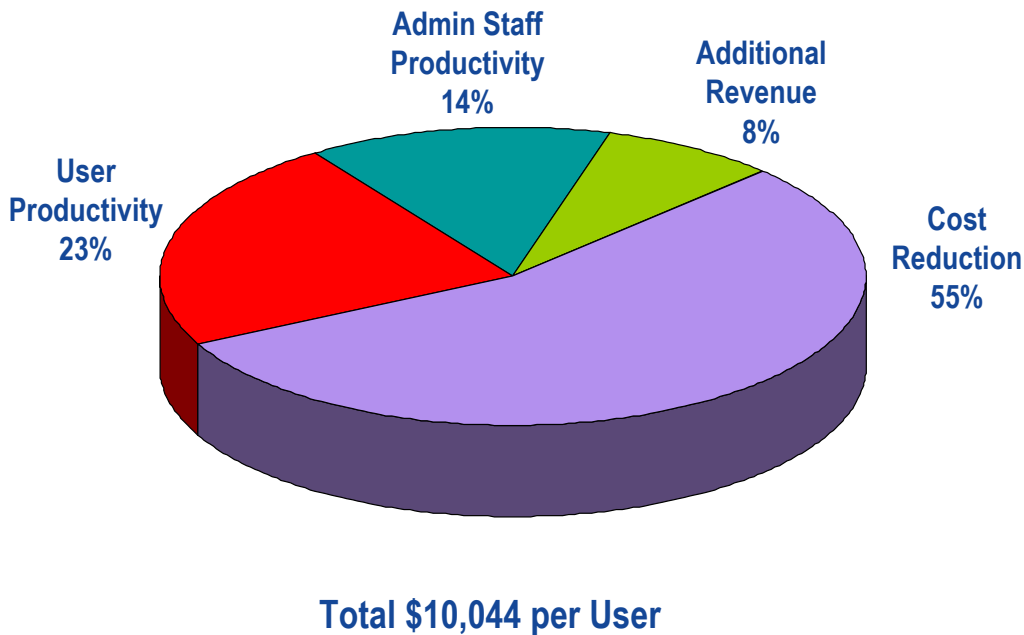
IDC published a similar study of larger companies last year and while larger companies were able to realize a quicker return on investment (4.3 months versus 7.5 months), midsized businesses achieved a greater ROI. Midsized businesses achieved a three-year ROI of 459% versus 300% for larger- sized companies. This shows that midsize companies have even more to gain from mobilizing their workforce than their larger counterparts.

A breakdown of specific benefits follows:

Increased User and admin staff productivity. In the companies surveyed, user productivity increased by an average of 8% following deployment of the mobility solution. After applying the 40% productivity factor, this increase resulted in an additional 5.1 hours a month of productive time per user. Based on a first-year loaded salary of \$75,516, and annual raises of 5%, the average cost savings from higher user productivity over three years totaled \$477,121 annually. When normalized for the number of end users, the savings amounted to \$2,263 per user (see Figure 1).

FIGURE 1

Average Annual Gains from Deploying Microsoft Mobility Solutions



Source: IDC, 2006

To determine the increase in admin staff productivity from deploying the Microsoft software, IDC asked questions about staff time needed for various activities before and after implementation of the software. Admin staff productivity increased by an average of 16%. Based on a first-year loaded salary of \$44,800, and annual raises of 5%, the savings in admin staff productivity over three years averaged \$1,419 per user per year.

Reduced staff. Companies can cut costs by increasing operational efficiency, thereby reducing the number of admin staff needed to support the growing number of users, either by direct reduction of staff or by avoiding hiring additional people. IDC asked questions about the average number of users supported by each admin staff member, before and after deploying the mobility solution. On average, the surveyed companies reduced the number of admin staff by 0.71 person, and avoided hiring another two people. Over the three years, the annual payroll savings from this increased management efficiency averaged \$629 per user.

Cost reduction. IDC also asked about other cost savings, both one-time and recurring, from deploying the mobility solution. Over the three years, the companies realized an average additional cost savings of \$4,929 per user per year, resulting in a total annual cost reduction of \$5,559 per user.

Additional revenue. After deploying the mobility solution, the companies had an average 10% increase in sales revenue. Assuming a 50% tax on the increased revenue, the net gain in revenue over three years averaged \$805 per user per year.

A summary of the companies interviewed, the mobile solutions deployed, and the benefits achieved are included in Table 2.

TABLE 2

Interview Summaries			
Business Type	Country	Solution	Benefits
Bindery and Laminating Equipment Manufacturer	USA	A mobile field service automation solution called PartsArena by InfoMill Ltd. 115 reps use the solution on Windows Mobile devices over the Verizon Wireless network.	Faster and more efficient field technician response; time savings of approximately 30 minutes per day per person; increased sales due to time saved.
Workplace Safety Inspection Services	Spain	A mobile in-field forms-based solution used by 415 inspectors to track safety and health risks. Developed and deployed by partner Kinetical.	20% increase in field technician productivity. More effective communication with clients.
Energy	USA	SAT-Corp's IntelaTrac software enables plant staff to capture and access key performance data on Windows Mobile devices.	A significant reduction in plant downtime and reduction in lost power generation revenue; 15-20% increase in user efficiency, increased job satisfaction, 100% payback within five months of deployment.
Retail Auto Parts	USA	Mobile field sales automation and remote order entry solution used by approximately 400 field employees.	Improved field productivity, increased customer satisfaction, shorter transaction cycle.
Automotive Services	United Kingdom	Windows Mobile PDAs are used to assist with mobile vehicle inspections and damage tracking.	20% increase in processing volume, increased productivity, improved data accuracy and reporting.
Transportation & Logistics	USA	A Windows Mobile solution using Countermind's Delivery Driver Support System helps more than 1000 drivers, customer service agents, and clerks automate inventory management and package delivery.	More than \$2M in additional revenue, faster delivery throughput, improved productivity for drivers, reduced clerical costs, and better customer service.

TABLE 2

Interview Summaries

Business Type	Country	Solution	Benefits
Medical Device Manufacturer	USA	130 marketing, sales and call center employees use a Windows Mobile and Dynamics CRM solution on the Verizon Wireless network.	Increased revenue per sales rep; increased sales force productivity through decreased administrative workload; improved flow of customer and sales data from the field.
Retail Maintenance Services	Australia	Wireless dispatching solution developed by Microe Pty Ltd. to geographically dispersed field technicians. Used over Telstra network.	Ability to optimize and prioritize dispatch scheduling, faster job turnaround, increased field technician productivity.
Food services	Spain	A mobile Sales Force Automation solution was integrated with the company's SAP backend by partner Consultia.	30% more visits to customers, improved customer satisfaction and fewer returns through faster, more efficient order entry and processing.
Winery	USA	Wireless sales force automation system, integrated with Microsoft Dynamics by partner Elipsis. Uses Verizon Wireless network.	50% reduction in overall order management cycle, nearly 100% reduction in data errors, 50% increase in inside sales productivity.
Construction	USA	Mobile project monitoring, management and contractor dispatching over the Verizon Wireless network.	Shortened project cycle time, reduced error-related cost, faster time to market with new homes.
Energy	USA	SAT Corp.'s IntelTrac solution is used on Windows Mobile devices to gather and transmit information from field facilities to a central monitoring site.	Improved data quality and timeliness, resulting in improved preventative maintenance decisions and less plant downtime.
Restaurant Chain	United Kingdom	470 staff at 42 restaurant sites use Symbol devices running Windows Mobile to wirelessly take and communicate orders.	Streamlined order processing resulting in an average annual revenue increase of £150,000 per site, improved customer experience and increased satisfaction.
Agriculture	USA	Remote monitoring and troubleshooting of packing machinery performance by approximately 40 engineers and operations employees.	More efficient use of technical staff, faster break-fix cycles, improved product quality and customer satisfaction.
Beer Distributor	USA	Mobile field service automation solution integrated with ERP by partner Rutherford and Associates. Used on a Verizon Wireless network by 169 sales and delivery employees.	Improved order efficiency, faster availability of ordering and cash flow data, improved driver efficiency, improved customer satisfaction.

Source: IDC, 2006

CHALLENGES AND OPPORTUNITIES

Despite the benefits companies are realizing with Windows Mobile and related products, Microsoft faces a number of challenges as it delivers its mobility solution to the midsize customers:

- ☒ **Telling a Holistic Story.** Microsoft provides an increasing number of products that also include mobility functions. However, many of these disparate products exist among a large number of Microsoft products, and identifying mobility across all of Microsoft's product set can be daunting. As the company has begun to tie Exchange with Windows Mobile, for example, so too does it need to tell a more cohesive and integrated story regarding how other solutions fit together in the mobile stack from end user devices to back end servers.
- ☒ **Partner Recommendations.** Microsoft leverages a large number of third-party software providers and partners to provide complete end-to-end horizontal and vertical-specific mobile business solutions. Some identification may be warranted regarding which partners and what products will fill in the coverage gaps across the Microsoft product portfolio in order to provide these complete end-to-end solutions.
- ☒ **Recognizing and Responding to the Needs of Midsize Companies.** Understanding that midsize companies seek packaged solutions for mobility is critical for Microsoft to succeed in this segment. Simplifying and delivering customized product offerings that bring relief to IT is an important hurdle to get over in winning midsize businesses. Targeting existing resources and investment as keys to mobile extension are important concepts to master in addressing this market.

Opportunities

Microsoft also has a number of opportunities ahead of it and the following outlines the ability to capture those within midsize companies:

- ☒ **Serving the Underserved.** Many mobile software providers target large enterprises or focus on the mobile operator's channel for the small business customer. Midsize companies are often a marketing challenge for software companies, so a true opportunity exists to capture this underserved and increasingly important market.
- ☒ **Aligned Product Set.** Microsoft has begun to offer a number of products that are geared toward midsize companies or otherwise have some significant penetration in that market. Products such as Exchange, Mobile CRM, Windows Mobile-based devices and others play very well with the midsize market, and Microsoft has a unique opportunity to further extend some of these existing product sets out into the mobile market.

☒ **Channel and Product Packaging.** Packaging and productizing a set of solutions for midsize businesses is a viable opportunity that may assist in some of the disconnect that occurs in attempts to reach this segment. As mentioned previously, mobile suppliers often steer products distinctively for large enterprises or through channels to small businesses, often not properly targeting the midsize company market segment. Delivering such products as Exchange and Mobile CRM as potential kick starters for the market provides customers and key VARs and mobile operators with digestible offerings that are in the realm of this stage of deployment, where email and an applications leveraging CRM is very applicable.

Mobility creates value for the business customer, either directly as cost savings, increased revenue, and improved productivity or indirectly as improved customer satisfaction and loyalty. Mobile solutions have evolved to the point where it is possible for midsize companies to deploy mobile solutions and reap these benefits. For the midsize companies interviewed in this study the three-year ROI was 459% and they were able to do this while improving the quality of service and building better customer relationships.

APPENDIX: CASE STUDIES

Honig Vineyard and Winery

Honig Vineyard and Winery is a Napa Valley, California-based winery that recognizes the role technology plays as a key element to improve overall efficiency and to better connect with customers around the country. A few years ago, Honig saw a clear opportunity to streamline the way its field salespeople communicated with inside sales personnel. Their California-based sales reps would call individual orders for wine into the sales desk, where the details were first written down, input into an electronic order entry system, and sent off to the appropriate warehouse. Not only was the order process inherently inefficient, it also failed to capture and leverage valuable customer information.

Honig's strategy was to put as much power in the hands of its sales reps as possible. With the help of Elypsis, a developer of software solutions targeted to the wine industry, Honig deployed a sales force automation system that employs Microsoft Windows Mobile software for Pocket PCs and runs on the Verizon Wireless network. Sales reps can now use the devices to look up order history, check pricing or perform other facilitating functions. Once orders are entered into the device, they are sent directly to Honig's backend order management systems, a principal component of which is the Microsoft Dynamics CRM platform. With its sales figures more transparent, Honig can now be more proactive in managing its key retail and wholesale accounts.

The most immediate benefit of the new solution is an improvement in order management efficiency, with Honig estimating a reduction in the overall cycle of over 50%, and the near elimination of data errors. Another was a 50% increase in the productivity of the inside sales function, which enables staff to handle more strategic and value-added activities. The most significant benefits, though, are stronger customer relationships and top-line growth. Enabled by the new platform, Honig has made proactive customer management one of the hallmarks of its strategy.

"It's much easier for us to retain a customer than it is to get a new one," says Michael Honig, President of Honig Vineyard and Winery. "Our strategy is to use the information we get [from the new platform] to better understand and respond quickly to our customers' needs, and thereby build a stronger relationship with them." The company can now communicate with its customers more effectively and in a more informed way, improving customers' perception of the company, building the strength of the Honig brand and, ultimately, its market share. Honig attributes a 33% increase in sales to the combined effect of improved order management efficiency and highly proficient account management practices.

Honig plans to build on the success of its solution by bringing its 53 distributors onto the Dynamics CRM system, and adding Microsoft's CRM offering to its ERP and mobile applications. Once fully deployed, the solution will give Honig the means to better understand the underlying patterns within its business, and the tools it needs to cultivate accounts nationwide.

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W a g a m a m a

Based in the United Kingdom, the Wagamama restaurant chain follows a distinct and highly successful business model based on fast, efficient service. Since its formation in 1992, the company has modeled its restaurants on Japanese 'ramen' noodle bars, where food is served fast and fresh. To make this model work on a large-scale, Wagamama needed to develop systems and processes for restaurant operations to flow as smoothly as possible, while providing customers with a pleasant (that is, not noisy and chaotic) dining experience. In particular, the servers needed to get their orders back to the preparation area quickly and efficiently. Its answer was to rely on mobile technology to handle all aspects of the customer interaction, from opening tables to entering and changing order information and printing the customer's tab.

One of Wagamama's most important requirements was for the device interface to replicate the fixed point-of-sale terminal without any functional compromises. After evaluating a number of options, the company chose the Windows Mobile platform. Wagamama also needed a partner to help create a set of specialized applications around key restaurant processes. For this, the company turned to Extensity who worked with Wagamama internal staff, to put in place a wireless, thin-client solution based on its SmartSeries point-of-sale application suite. After first deploying the application on low-end consumer devices, the company switched over to a ruggedized device, the Symbol Technologies PPT8846. The solution is now deployed across all 42 restaurant sites and there are 470 devices deployed across the entire company.

Servers can now take drink orders and send them wirelessly back to the bar while continuing to take food orders, so drinks often arrive before the food ordering is completed. Relieved of the need to physically deliver their hand-written order, servers spend less time in transit and more time serving customers, and mistakes caused by illegible handwriting have been eliminated. Split-screen functions allow servers to also do side tasks, such as accessing nutritional information, without leaving the ordering screen.

Marks estimates that an average site gains more £3,000 per week in additional revenue, putting the payback time for its solution at four to six months.

The wireless order-taking system has saved the 90 minutes a week that servers spend in transit between the table and the fixed point-of-sale area, allowing them to take more orders. Marks estimates that an average site gains more £3,000 per week in additional revenue, putting the payback time for its solution at four to six months.

"Because of its similarity to a fixed point-of-sale system, training is absolutely negligible—about five minutes," Wagamama's Jerry Marks explains. "The fact that we don't have to train people on different pieces of software or hardware makes for much faster and smoother adoption by our staff."

Besides the increased revenue, another benefit of the Windows Mobile-based system is the relatively low cost of deployment and training. "Because of its similarity to a fixed point-of-sale system, training is absolutely negligible—about five minutes," Wagamama's Jerry Marks explains. "The fact that we don't have to train people on different pieces of software or hardware makes for much faster and smoother adoption by our staff."

HJB Group

Based in the Melbourne suburb of Scoresby in Australia, the HJB Group is a facilities management firm whose core business is providing building and grounds services at retail fuel stations. Dispatching jobs to its field engineers used to be a highly inefficient process. Calls were logged and recorded at a centralized call center, and a paper-based work order faxed to one of three regional service hubs, in Melbourne, Sydney and Brisbane. Apart from telephone-based contact, its 65 field technicians had no way to exchange key information, such as the time spent, materials used and other notes, with their dispatch centers from the field.

HJB resolved this problem with a wireless dispatch system developed by Microe Pty Ltd, a Melbourne-based ISV specializing in mobile wireless data solutions. Using its pocketWIZ family of mobile solutions, Microe employed a mix of i-mate JAM (used by 67 field technicians) and JAMin (used by 10 managers and supervisors) PDAs running Microsoft Windows Mobile 5.0, with Telstra providing mobile WAN connectivity for the devices.

With the ability to move job-related data between dispatchers and field technicians, HJB is now able to optimize key aspects of the dispatch process, including giving dispatchers greater control in prioritizing jobs. Because GPS is integrated into the solution, dispatchers know where field technicians are when they receive an emergency service call, so they can direct it to the right technician to guarantee the shortest travel time, says Russell Wilkie, operations director of HJB. Technicians can also save time by communicating parts requirements to their regional dispatch centers from the field.

One of the key reasons for selecting Microsoft Windows Mobile 5.0 was to support a range of supplementary applications. Managers in the field can now create job estimates and send them to customers for approval. Other kinds of field applications

relate to compliance reporting and job safety analysis. The ability to perform all these applications on a single device has saved a substantial amount of time for both managers and field technicians, enabling them to complete more jobs over a fixed period.

For HJB, the most important performance variables are the time required to respond to problems and the effectiveness with which problems are solved once on site. In addition to strengthening customer satisfaction, the performance improvements flow right to HJB's bottom line as increased billings. As HJB adds more customers, the increased efficiency of its dispatch and field service operations will enable it to do more without increasing the number of technicians in the field. For example, accounts that would once require four or five technicians now require just two.

In addition to strengthening customer satisfaction, the performance improvements flow right to HJB's bottom line as increased billings.

On the administrative front, the ability to instantaneously upload project information upon completion of job means that HJB can bill its customers promptly, instead of waiting three or four days for technicians to deliver the needed paperwork. By accelerating its ability to bill customers, HJB has substantially improved its month-to-month cash flow. Based on savings such as this, HJB achieved a full payback on its investment within 12 months.

Noltex

A joint venture between Nippon Gohsei U.S.A. Co., Ltd. and Mitsubishi Chemical America, Noltex deployed a mobile field data collection solution based on Microsoft Windows Mobile at its manufacturing site in La Porte, Texas. Like many chemical manufacturers, Noltex had an inefficient means of gathering important operating data from across its facilities. In most cases, the company's field personnel would manually record information from alarms, gauges and sensors throughout the site and write it on a paper-based report sheet. That information was then manually entered into an operational data repository. Manually entering the information greatly increased the probability of error and also resulted in a long lead time from the gathering of data until it was available for analysis. The process made it difficult for Noltex to optimize its preventative field maintenance activities.

In evaluating its course of action, Noltex specified a mobile solution that would be fully compatible with its existing network, says IT manager Joe Kelly. "We sought a wireless solution that we could standardize across our network," says Kelly. "Equally important to us were the tools that we could use to remotely update our handheld devices. Windows Mobile was strong in both of these areas. In fact, we would have had to take a very hard look at doing this system at all if it weren't for Windows Mobile. It was a huge selling point for us." In terms of vendor selection, Noltex was looking for a proven, best-of-breed field support solution that would improve operational efficiency, reduce equipment maintenance costs and support decision-making. Ultimately, Noltex selected SAT Corp's IntelaTrac application running on hardened devices from Symbol Technologies that had been deemed suitable for use in Noltex's hazardous environment. Wireless productivity was provided by Cisco 802.11 wireless access points and routers. SAT designed and deployed the solution.

The solution is currently used by nine field personnel at the La Porte, Texas site. Field personnel use their devices to wirelessly gather plant operations data. This data is then automatically uploaded through a data synchronization server (part of its SAP ERP platform) to Noltex's SQL Server database. In parallel, this information is automatically routed to its PI data historian, which is the primary platform used by its field engineers and operations personnel for analysis and trending.

The majority of the implementation was performed via SAT personnel, with significant input from Noltex's operations staff in matters relating to process flow, data elements required, interface design and other usage factors that are built into the solution. One of the key benefits of this project was the avoidance of several hundred thousand dollars in costs related to unplanned plant shutdowns. Joe Kelly reports, "We used to have to bring a plant down once every 14 months for a 4- to 6-week period for scheduled maintenance. Because we have more reliable, higher quality plant maintenance data, we're able to extend the time to 18 months [between planned outages] without increasing our risks. We save basically a month production every three years, which translates into about three quarters of a million per year in revenue."

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Dirección Sociedad de Prevención Asepeyo

Sociedad de Prevención de Asepeyo operates in Spain where its key business is to perform workplace inspections so employers can maintain maximum levels of worker safety. Under its traditional practices, Sociedad de Prevención de Asepeyo's 400-plus inspectors, known as field technicians, gather information about a particular company in paper form before an actual site visit. At the customer's site, field technicians manually write all their information onto paper forms. Depending upon the situation, they would also capture photos and videos to support their analysis and recommendations. Back at the office, the inspectors then transcribe their written notes into a desktop application and access additional information from the company's backend information systems for their final report.

Having recently been segregated from Asepeyo, Sociedad de Prevención de Asepeyo sought to improve the effectiveness of its field technicians by streamlining its core processes. Working with Barcelona-based Kinetical, a provider of mobility solutions, Asepeyo established a prototype solution that it deployed with a limited number of its employees. Under the solution, field technicians would use Windows Mobile PDAs to first upload information from backend systems, and then, at the customer's site, to input forms-based information directly into the PDAs. On returning to their home office, field technicians would plug into their desktop systems and automatically synchronize the data they had gathered on their PDAs with their back-office applications. After the initial prototyping stage was deemed a success it was deployed among all 400 field technicians.

At present, Sociedad de Prevención de Asepeyo's policy is to have one device for every two field technicians. Staff who are engaged in on-site visits would use their PDA, while those writing their reports at headquarters would be using their desktop. Sociedad de Prevención de Asepeyo is using a mix of two kinds of devices: the Qtek 2020 Pocket PC and the Qtek 9090.

José A. Llorente Lomikovsky, Director of Deployment and Implementation within Asepeyo's engineering department, estimates that the field technicians have improved productivity by an average of 20%. But the biggest benefits are in the quality of service that Sociedad de Prevención de Asepeyo has been able to provide to its customers. "We are now able to do much more sophisticated interaction with our customers, including the ability to give presentations straight from the PDA," says Lomikovsky. "This makes our communication with the customer much more effective and—because we're using advanced technology to do this—it reflects well on our organization and its values."

In the future, Sociedad de Prevención de Asepeyo plans to incorporate wireless connectivity to its PDAs, a development that Lomikovsky expects will result in an even greater surge of productivity, since technicians will be able to access information from backend systems without having to go into the office to gather or download information. "The more flexible our field technicians are in doing inspections, the more effective we as an organization will be in delivering value to our customers. The reliability of the Microsoft Windows Mobile Platform—and its ability to work with our existing Microsoft applications—will make it easier for us to expand our activities in this area."

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IDC's ROI Methodology

To quantify the business benefits of technology solutions, IDC has developed an ROI methodology that measures the total costs of deployment and the sum of the savings achieved. The methodology calculates the ROI in a three-step process:

1. **Ascertain the investment** made in the purchase and implementation of the solution and the associated training and maintenance costs. To get an accurate assessment of the investment in deploying Microsoft Exchange and Windows Mobile software, IDC asked for the purchase, installation and maintenance costs, as well as the cost of any additional infrastructure required, and the loaded costs of the incremental IT staff required to support the Microsoft software.
2. **Measure the gains** in user and admin staff productivity from deploying the solution, the cost savings from increased operational efficiency and other factors, and additional revenue from increased sales.

❑ **Productivity savings.** Productivity reflects how effectively users and admin staff utilize their time. To determine productivity savings, IDC multiplies increases in the productive time of users and admin staff by their burdened salary (salary + 40% for benefits and overhead), and then multiplies by a further 40% to account for users spending part of their time on activities that are collateral to the job they are paid to do.

❑ **Cost reduction.** Costs can be cut by improving operational efficiency, which is a measure of how many users an admin person can support. Savings can come from reducing the number of admin staff needed, or by avoiding hiring additional staff to support growing numbers of users. Costs can also be cut by reducing training needs, eliminating other software or tools, or avoiding wasteful processes and practices.

- ❑ **Increased revenue.** Mobility opens up myriad opportunities to boost sales. IDC taxes the increased revenue at 50% when calculating the revenue gains from deploying the mobility solution.

3. **Calculate the payback period and ROI for the deployed solution.** From the results of the interviews, IDC determines the net present value of the savings over three years from investing in Microsoft Exchange and Windows Mobile software, and calculates the average payback period and rate of return. The net present value of the three-year savings is calculated by subtracting the amount that would have been realized by investing the original sum in an instrument yielding a 12% return to allow for the missed opportunity cost. Further, because IT solutions require a deployment period, the full benefits of the solution are not available during deployment. To capture this reality, IDC prorates the benefits on a monthly basis, then subtracts the deployment time from the first-year savings.

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