



Wireless Enterprise Express Business White Paper

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1. Summary

This document is for decision makers considering a mobile business solution. This document explains what we at WES believe are the most important themes of mobile business including a clear explanation of what it is and how it is being successfully used. We hope this will help you identify how it could be used to help save or make money for your business. 'Process Simplification & Customization' (aka 'No Programming') is a unique differentiator of the WE/X mobile business solution and this document explains why this has been a central goal in the development of our technology and why we feel this will also be important to you. WE/X can connect to SAP without programming and can significantly simplify the process of connecting to other business applications. WE/X allows our customers to use all popular mobile business devices and even mix and match different devices within the same solution. WE/X allows our customers to implement an agile mobile business solution that delivers superior business value. WE/X allows our customers to set the agenda for mobile business deployment rather than the technology setting the agenda for their business. For more information visit www.wes-global.com

2. Mobile Business

Mobile business is the next major evolution of e-business. Today more people own a mobile phone than own personal computers (PCs). In three years mobile devices such as Personal Digital Assistants (PDAs) and smart phones are likely to outnumber those PCs. At the same time 25 percent of the workforce is likely to be mobile. Many are predicting that the primary source of contact with the Internet will be through a mobile device.

Mobile Business allows users to access head office business applications easily, quickly and economically from anywhere and at any time using a PDA or smart phone therefore a mobile user can do business when he/she is 'on the go'. Mobile business offers employees a new way of working and business a new opportunity to make or save money. There is a value in making an employees job easier, quicker and more efficient. There is a value in eliminating mistakes or providing a better service to the customer.

Mobile Business is easier because process simplification and customization functionality allows the user interface to be greatly simplified so that it can be easily viewed via small PDA or smart phone screens. Mobile Business is faster because mobile devices do not have to be 'booted up' so they are instantly available for use. The screens are simpler so transactions are entered faster (a typical sales order takes

less than a minute to enter). Mobile devices do not have to be ‘powered down’ saving more valuable minutes.

Mobile Business is more economical because it makes efficient use of communications band-width. This means that users have to be on-line for shorter periods of time. ‘Intelligent Clients’ allow transactions to be entered off-line and synchronized later. This provides significant savings in airtime charges. Mobile devices are significantly cheaper than a laptop or PC.

Mobile business can be done anywhere. Users ‘on the go’ have hours of dead time every day, they wait in the airport, they sit on a plane, they wait for a rental car or sit in a taxi. They may also be with a client who would benefit from an immediate response. Warehouse employees for example can update picking lists wherever they are in the warehouse (avoiding numerous time consuming trips to the warehouse office for new paperwork).

Mobile Business opens up significant new opportunities because mobile devices go beyond the traditional mobility boundary of the laptop allowing mobile business users to truly do business anywhere and that opens up significant new opportunities for making employees jobs easier, faster, more efficient and helping make employees more responsive. Mobile business provides an opportunity for significant business value for a modest investment.

3. Mobile Business Technologies Have Come Of Age

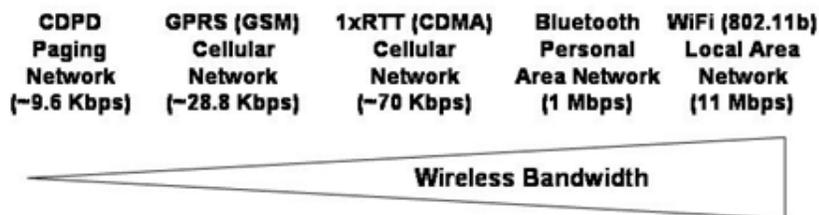
Wireless Computing Convergence - Mobility usage started with single function devices such as cell phones, text pagers, bar code readers, walkie talkies, and Personal Digital Assistant (PDA) organizers. These functions have become available in converged PDA and cell phone devices (either PDAs with an integrated phone or a cell phone with PDA software functions integrated). Rugged PDAs are ones that can withstand being dropped or exposed to water, dust, and extreme temperature ranges, are available for harsh work environments. Smart phones support a combination of voice and data functions but in a smaller cell phone-sized device. These integrated devices help to reduce the costs and decrease the complexity associated with outfitting a mobile workforce.



High Capacity Data Storage Media - Devices used in business may need to store a large amount of data. Due to the advances driven by digital camera adoption, smaller cards with increasing storage volume are available for mobile devices. For example, postage stamp sized Secure Digital (SD) and Multimedia Cards (MMC) are available with up to 512 Megabytes of storage. Large storage capacity is key to reducing the need for costly and bulky printed material. In the mid 1990's external Flash storage cards cost over ten dollars per Megabyte. In 2003, these same storage cards can be purchased for less than one dollar per Megabyte. Ready access to up-to-the-minute data can save costs (e.g. avoid an additional customer visit), speed up business processes, and build customer trust.

High Speed Wireless Networks - Wireless bandwidth is increasing for local and wide area connectivity which supports the higher data transfer demands of business applications such as e-mail with attachments, multimedia content, and Web services. Wireless operators are expanding the coverage, reliability, and data capacity in their GSM/GPRS and CDMA/1xRTT phone networks as well as adding specific data services such as wireless e-mail. Mobile devices support these cell phone networks as well as 802.11b wireless local area network and Bluetooth personal area wireless connectivity. Some mobile devices incorporate Bluetooth, Local Area Network (LAN), and Wide Area Network (WAN) wireless connectivity all into one device. Wireless connectivity helps to flow information and business transactions to remote locations where it was not available before. This expands the reach of business services opening up more revenue generating opportunities.

A number of workers are using wireless networks in the home to connect to systems and services at work. The PC has been credited with improving work productivity. Now this flow of information is able to affordably extend outside the office and home. As the adoption of these technologies increases, it is likely that the overall costs of each component will decrease. This, along with competition reducing costs for mobile services, provides the opportunity for a positive return on investment to occur in a shorter period of time.



4. Mobile Business vs Remote Access

Remote Access - allows users to have a workstation located away from the office, possibly at home or in their hotel room. The remote user generally would dial into the head office and connect to the network from where he/she can access business applications. The SAP screens he sees are identical to those that he would see from his PC located in the office. Although remote access does provide benefits it lacks some important characteristics which would make it an effective mobile business solution.

Generally remote access solutions are suitable for users that need infrequent access to head-office business applications from home or a hotel room. Remote transactions are slow without process simplification and customization. The SAP interface for example is very 'chatty' in terms of communications. It uses complicated screens with lots of data. This is not an efficient interface for narrow communication bandwidths such as dial-up or GPRS. It may take a remote access user 2 to 10 times longer to create a SAP sales order using remote access than with a true mobile business solution.

Laptops are designed to be used while you are sitting down. If you are 'on the go', e.g. walking, standing, flying or riding the laptop is too large and cumbersome to use. A typical laptop with Pentium 4 processor running Windows XP takes approx 3 minutes to boot up and 2 minutes to power down. Users therefore

don't bother to use their laptops while on the go, instead they generally wait until they are in an office, at home or in a hotel room. Remote access provide on-line mode only, this is often called 'emulation' (aka 5250/3270/Telnet/others). This means that SAP and other business systems can only be accessed when the user has an active connection to the head office server. Since users have to be on-line for longer periods to process transactions, the communication costs are higher.

Mobile Business - allows users to access business applications easily, quickly and economically from anywhere. Generally using a wireless PDA or smart phone a mobile user can do business when he is 'on the go'. Mobile business offers a new way of working. There is a value in making an employees job easier, quicker and more efficient. There is a value in eliminating mistakes and providing a better service to the customer. Process simplification and customization features allow the user interface to be greatly simplified so that it can be easily used via small PDA / smart phone screens.

PDA's and smart phones do not have to be booted up so they are instantly available for use. The screens are simpler so transactions are entered faster (a typical sales order takes less than a minute to create) PDA's and smart phones do not have to be 'powered down' saving more valuable minutes. Efficient use of communications band-width means that users have to be on-line for shorter periods of time. 'Intelligent Clients' allow transactions to be entered off-line and synchronized later. This provides significant savings in airtime charges and provides increased flexibility in areas of poor wireless network coverage.

Users 'on the go' have hours of dead time every day, they wait in the airport, they sit on a plane, they wait for a rental car or sit in a taxi. They may also be with a client who would benefit from an immediate response. Warehouse employees for example can update picking lists wherever they are in the warehouse (avoiding numerous time consuming trips to the warehouse office for new paperwork).

PDA's and smart phones go beyond the traditional mobility boundary of the laptop allowing mobile business users to truly do business anywhere and that opens up significant new opportunities for making employees jobs easier, faster, more efficient and helping make employees more responsive. Mobile business provides employers an opportunity to make or save money for a modest investment.

5. Traditional Business Applications vs Mobile Business Applications

Traditional Business Applications (e.g. SAP) assume that users are static when working. Most likely users are in the office sitting down at their desk. Traditional business applications assume that most users are connecting via a powerful PC or laptop and they assume that they have a high speed and robust network connection to the server. The application designers therefore build a functionally rich but 'fat' user interface. By 'fat' we mean that screens show a great deal of non essential information and a lot of non essential local processing is performed. Network traffic is not optimized to eliminate transmission of non-essential data (why bother if you have 100Mbps+ of band-width). Recovery after a network failure is generally a simple 'roll back'* activity since a more sophisticated solution is generally not necessary for such an infrequent event. Traditional business applications often assume that the user will be running Windows or Linux on their PC or laptop and design their solution for one or both of these platforms.

** Roll back means that you lose all your incomplete (un-committed) transactions at time of failure.*

Mobile Business Applications – on the other hand assume that the user is mobile when working. Most likely users are out of the office, possibly standing and possibly moving. Mobile business applications assume that most users are connected via highly portable mobile devices such as a PDA or smart phone and are connected to the server via wireless networks which can sometimes be fragile. PDA's and smart phones are highly portable however have small screens and small keyboards. The application designers therefore have to build a highly simplified dialogue between the mobile user and server. The dialogue must allow the user to perform the same business transactions like placing an order or picking stock however this must be highly optimized such that only essential information is displayed, only essential keystrokes are required, only essential local processing is performed and the minimum of communication band-width is utilized. Furthermore it must be assumed that users could be in an area of poor wireless

coverage or no wireless coverage. The mobile application must therefore have sophisticated recovery, security and the ability to work off-line. There are a number of popular mobile device platforms which include Windows Mobile, Palm, Blackberry, WAP and others. The mobile application must be able to adjust to any of these platforms. Another often forgotten but very important factor is that business requirements for mobile applications are constantly changing so it's important that it's quick, easy and economical to change a mobile business application.

6. Opportunities Presented By Mobile Business

Mobile business offers employees a new way of working and business a new opportunity to make or save money. There is a value in making an employees job easier, quicker and more efficient. There is a value in eliminating mistakes or providing a better service to the customer.

Mobile Business can be applied to any business area where employees need to be away from their desk to do their work and need access to head office business applications. 'Life before the laptop' is becoming 'life before the PDA or smart phone'. Significant improved efficiencies include: reduction of 'black-out' periods while employees travel. Enablement of 24x7 access to mission critical SAP and other business applications. The reduction or elimination of costly data entry mistakes. Improved speed and responsiveness. Elimination of duplicate effort. Empowerment of employees to do a better job. Saving employees time. Cost savings include: Lower education costs due to simpler user interface. Lower hardware costs due to replacement of laptops with lower cost mobile devices. Deferred SAP (and other business application) upgrade costs due to release independent architecture.

Top horizontal market opportunities – sales force automation, field force automation, billing, logistics, order entry, inventory management, asset management, warehousing, time and travel.

Top vertical market opportunities – financial services, pharmaceutical, healthcare, insurance, transportation, distribution, travel & hospitality, telecommunications, government & military, manufacturing, education and retail.

7. WE/X Differentiators

At WES we understand that mobile business may be new to our customers' organizations. We understand that some customers may wish to start with a pilot project and extend mobile business to new user groups gradually. Some customers may not yet understand all of the potential that mobile business can bring their organization. These customers may be looking for a flexible solution that can be continuously, rapidly and economically adapted to their latest changeable mobile business needs. If this sounds like your customer then WE/X is probably the mobile business solution you have been waiting for.

At the heart of WE/X is something we call 'process simplification and customization'. You may prefer to think of it simply as 'no programming'. With WE/X mobile business applications are 'configured' rather than 'hand coded'. At WES we believe that hand coding should play little or no part in modern mobile business applications because it makes them expensive and slow to build and change. The built in process simplification and customization of WE/X allows configuration of all the components that our customers need, and this includes adapters, workflows, tasks, menus, data transformations, data synchronization rules, users, permissions, screen templates and more. A WE/X mobile business application is essentially a set of rules that is stored internally in a WE/X meta-data database.

Using a WE/X certified consultant and starting with a known set of business requirements a live WE/X prototype can be implemented typically within 10 man-days. This is because we are 'configuring' and not 'programming'. This assumes we are connecting to SAP using one of our ready-to-run connectors.

Some customers may wish to extend the project by weeks to cover additional end-user training sessions, building additional connectors and other additional activities.

Before you can go live with your mobile business application you must first connect to SAP. Consider an example: You wish to create a new SAP sales order from your mobile device. The mobile business application must know which SAP business interfaces or BAPIs (business application programming interface) to run and it must also know how to manipulate the data that you enter into a format that is 'SAP friendly'. At WES we currently include SAP ready-to-run connectors for Sales, Time & Travel and Warehousing. More SAP connectors are coming soon. WE/X connectors further accelerate WE/X implementations.

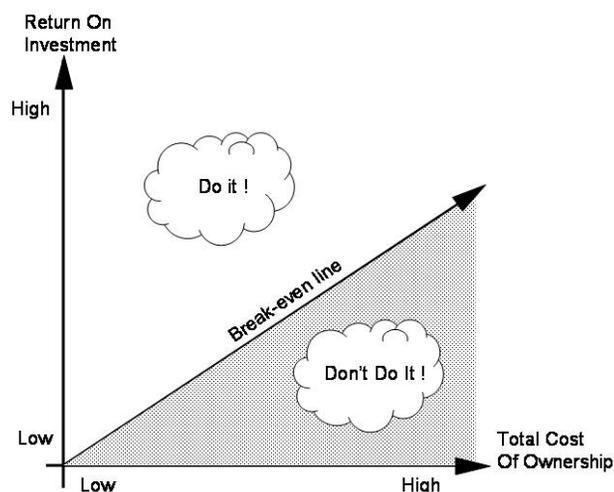
WE/X is a 'non-intrusive' solution. This means that no application changes or upgrades are required to your existing SAP implementation to use WE/X. WE/X is generally installed on a separate server which is on the same network as your SAP implementation. This can further accelerate implementations as no change management activity is generally required. WE/X has been designed to be SAP release independent so there is no need to upgrade older SAP implementations.

WE/X contains functionality which makes it easier to connect to non-SAP business applications. Any business application which includes a programming business interface (similar to BAPI) can be connected with the minimum of programming effort. (WES will provide a fixed estimate on a case by case basis).

WE/X Supports all popular mobile device platforms. This includes Windows Mobile, Palm, Blackberry, WAP, Symbian, Windows XP and Linux.

Finally WE/X allows Windows Mobile users to switch seamlessly between online and offline mode. Online mode gives the advantage of getting a real-time response to transactions. Off-line mode has the advantage of allowing users to work while disconnected from the network and synchronize later. Many mobile business projects can benefit from the seamless ability to switch.

8. Making a Case For Mobile Business



During the most recent economic downturn, companies have focused intensely on cost-cutting and expense reduction to weather the storm. Price erosion, increased competition in stagnant markets, and relentless scrutiny of corporate performance metrics by investors, among other factors, has intensified cost-control efforts.

Against this backdrop, corporate leaders must seek out and capitalize on strategies that will improve enterprise performance while also providing a short-term return on investment (ROI). At the same time, smart companies are investing wisely now in growth strategies that will distance them from the competition as the economy rebounds. Mobile business can help. Armed with the latest mobile devices, mobile employees can reduce paperwork and shrink business process cycle times, reducing overall labor requirements or freeing up valuable time for more productive, profitable activities. Mobile business also improves communication and customer satisfaction.

Memphis, Tenn.-based Fedex Corp. has realized these and other benefits for more than a decade and is continually optimizing its approach to leverage new technology. This past fall, FedEx began converting from industrial custom devices to more versatile, economical and flexible PDAs based on the Pocket PC operating system. Each of its 40,000 drivers will ultimately be equipped with these devices. FedEx PDAs operates across the general packet radio services (GPRS) network and incorporates Bluetooth technology as well as a built-in 802.11b wireless LAN system for communication between the driver, the truck and the home office.

Many other enterprises have avoided investments in mobile business to date due to early technical hurdles. These hurdles have been largely overcome, and mobile business strategies now warrant serious consideration. Latest generation PDAs and smart phones perform better and provide more sophisticated capabilities than previous versions, enabling users to securely access, transmit, and manipulate essential information on the go. Concurrent with improvements to the devices, wireless networks have matured, providing users with greater bandwidth and more reliable connectivity than in the past. Throughout Europe most airports are already equipped with Wi-Fi transmitters which provide free of charge high speed wireless internet connections. Throughout the US most Starbucks coffee shops offer free of charge Wi-Fi access.

The financial case for investments in mobile business strategies can withstand intense scrutiny by the Finance Department. CFOs, who have reigned in the freewheeling spending of the 1990s, today demand clear justification for every investment. When presenting the case for mobile business, enterprise planners must assess and present the total financial impact. This includes both total cost of ownership (TCO) and traditional ROI analyses.

Total Cost of Ownership. When assessing the TCO of a mobile business solution, it is important to optimize the investment in each of following areas:

Capital Investment. Choose a solution which supports all popular PDAs and smart phones. This will increase the possibility of re-using existing hardware and give greater scope to utilize the most cost effective new device platforms. Choose a solution which is release independent for business applications. If you are forced to upgrade SAP this could significantly increase the capital investment. Choose a solution that has a realistic licensing model. Choose software that is highly efficient as many pre-requisite components like application servers are charged per processor.

Implementation Costs. Many mobile business solutions require hand coding to tailor them to meet business requirements or make up for missing functionality. Hand coding requires expensive specialist programming skills and takes time. With such solutions it is typical that the implementation cost can be significantly higher than capital investment. Mobile business solutions that offer programmer-less implementation offer significantly lower implementation costs.

Changing Business Requirements. Mobile business applications must keep pace with changing business requirements. If you have to bring the programmers in every time your business requirements change is going to be expensive. Mobile business solutions that offer programmer-less modification offer lowest cost of change.

End-User Operations. Productivity is the critical factor to consider here. Consider the financial impact of a mere 1% increase in user productivity. Assuming a \$40 per hour, fully burdened cost of an employee

working 2,000 hours per year, a 1,000-employee organization could realize \$800,000 in savings from a 1% productivity improvement. An organization with 10,000 employees may see a bottom-line improvement of \$8 million through a workforce reduction or deferred hiring requirements. The same is true with respect to IT operational productivity; even a 1% improvement in operational efficiency can noticeably affect financial performance.

Significant financial benefits may also accrue simply from redirecting time saved to more profitable work. A 1% increase in sales productivity means an additional 20 hours in customer face time per year, per sales person. If each sales person closes even one more sale per year, this potentially equates to millions in additional revenue. For The Pepsi Bottling Group (PBG), the ability of 6,000 sales reps to use the limited time that they have at each store to close new sales has been greatly enhanced by a new “smart selling application” delivered on lightweight rugged PDAs from Symbol. PBG’s primary goal is to drive customer revenue. The application provides reps with “prompts” to promote upselling and cross selling and arms reps with information to reduce out-of-stocks and better forecast demand.

Administration. While short-term TCO benefits can be attained by managing acquisition costs and realizing productivity gains, overall administrative benefits represent continuous savings over time. In the case of remotely deployed mobile applications, these savings can come in the form of improved process efficiencies and automation, decreased errors, and reduced training times.

Return on Investment. ROI analysis helps predict how quickly a solution will return value to the enterprise. ROI calculations are numerous and varied. Some assumptions are fairly predictable, while others may be more difficult to assess absent specific-use cases. Following are some business benefits that may be used as the basis for a mobile ROI calculation.

Improved Efficiency. Often a return can be realized simply by speeding up a specific application or task. K-rauta, a Swedish provider of hardware and building supplies with 10 large warehouse stores, has equipped its employees with PDAs for access to its ERP system. Staff can now perform stock checks, pricing, and data input from anywhere in the store. As a result, check-in, inventory and stocktaking process times have been reduced by 50%. K-rauta has reduced the time spent walking back and forth from desk terminals to shelves by 70%. Employees no longer input data manually, thus saving time and increasing accuracy. Total time savings per year are estimated at up to 4,050 staff hours, which translates to €64,800 (\$72,985) in cost savings. Due to these benefits, K-rauta achieved an ROI in less than six months per store.

GMAC Commercial Mortgage reduced the time it took to process commercial loans from 90-120 days to 10 days or less. The project involved converting a serial paper-based process to parallel tasks supported by electronic forms on PDAs. It was completed in three months by three people.

Improved Effectiveness. The effectiveness of field personnel can be significantly improved. Consultants at Cap Gemini Ernst & Young (CGE&Y) UK needed to access key information such as email, calendars, and contact data. Using a combination of laptops with landline modems was cumbersome and unreliable. This spring, CGE&Y UK began piloting PDAs and smart phones with GPRS communications and a secure Access Point Node communications channel direct into its corporate network. Data synchronization is easy and reliable and has increased staff productivity tremendously. Users no longer spend time looking for network hook ups, thanks to always-on wireless capability. 85% of users are satisfied with the system, and 70% spend an hour or more per day using their mobile device for email, contact, and calendar information. The system is also cost-effective due to the use of GPRS, which charges for data exchange only, as opposed to a combination of global system for mobile (GSM) wireless technology and landlines.

Improved Accuracy. ROI due to a reduction or elimination of errors is quantifiable. First estimate the average number of errors per month. Estimate the average cost correct each error. Mobile business solutions can reduce errors by 90%. Improved accuracy can often pay for a mobile business solution in 6 months.