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# **The Mobile Imperative**

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### **The Mobile Imperative**

#### ***Introduction***

Most organizations now realize that their employees will increasingly be working outside of their brick and mortar buildings, and will need to be enabled with corporate back office and productivity applications no matter where the user may be located. This requires companies to become “mobilized”. Indeed, mobile and wireless deployment is being consistently placed within the top 5 initiatives of the next 3 years in surveys of business executives. Yet despite this high level of visibility, many challenges exist in defining, building and deploying mobile solutions, and understanding which workers should be enabled with such capability.

In many organizations, field force workers that face customers every day (e.g., service technicians, delivery people, inspectors, public service) are being outfitted with specialized mobile devices to greatly improve their efficiency and productivity. This is often where companies take their first steps into mobility, as the need is clear and the returns easy to define. Yet increasingly, knowledge workers are deploying wireless applications as well (e.g., wireless email) sometimes despite the lack of a clear business advantage (often being deployed due to executive demands rather than business requirement). It is clear then that organizations will need to support a variety of mobile work models and mobile devices in order to operate at maximum efficiency (e.g., knowledge workers with laptops, executives with smart phone devices, specialized workers with ruggedized handhelds, etc.). Within the next couple of years, this will no longer be optional, but will become a business imperative. This paper will highlight some of issues that must be addressed for companies to achieve a viable and cost effective mobile capability.

#### ***Major General Mobility Trends***

Within many organizations, knowledge workers are now approaching 35%- 40% of their working time outside of the office, and within two years we expect this to be 50%. Increasingly, users will be working from such diverse locations as a car, an airplane, from home, a hotel or a customer site, and all will require mobile applications to be productive. Further, wireless is rapidly becoming a mainstay for many users, with 95%+ of notebooks having built in WiFi, and a growing number now adding wide area wireless capability as well (i.e., 3G cellular cards). Indeed, we expect 75% of enterprises to deploy some form of wireless application within the next two years often starting with email but rapidly moving beyond that to include other applications (e.g., ERP, CRM, SFA, dispatch, asset management, job scheduling, trouble ticketing). Finally, personal mobile devices such as handhelds and smart phones, most of them wirelessly enabled, are often being deployed as data access devices. The majority of mobile workers (65%+) will be enabled with such capabilities within 3-4 years, adding diversity to corporate application deployments and forcing companies to deal with a wide array of client devices. As a result of these trends, organizations that are not looking at mobility and wireless as a strategic initiative will be at a major competitive disadvantage. In fact, we believe enterprises must consider mobility

and wireless capability as one of their three top strategic IT infrastructure initiatives for the next 3 years, and should be actively pursuing such projects.

### ***What Does a Mobile Worker Need?***

Multiple decisions need to be made when deploying mobile applications. In fact, companies should build a comprehensive strategic plan that is flexible enough to allow either substantial change or minor modification based on users' needs and business requirements. Some of the key areas needing to be addressed include:

- *Maximizing Security* – most users will require multiple points of interaction, each of which must be secured, both from a network perspective, but also from the perspective of data loss/theft. This is especially true with small, handheld devices that can easily be lost or stolen. Connection requirements (e.g., VPN, authentication) must be supplemented by the ability to protect data stored on the device (e.g., encryption, device kill), and the ability to manage and protect the device (e.g., management, file update, anti-virus). Wireless security must be an extension of existing security policy and must be designed in, not added on after the fact.
- *Choosing a device* - There is no one optimum device that will meet the mobility needs of all workers within an enterprise. Indeed, device diversity is and will remain a fact of life in most enterprises, particularly at the personal device level. Companies should try to standardize on platforms (e.g., PocketPC, Palm, Blackberry, Symbian) as much as is practical, but should focus on optimizing device selection to particular workers' needs, and not try to force fit a device to a particular deployment. Usability and form factor optimization can make the difference between success and failure in mobility, so flexibility is important.
- *Finding a connection* – many users will require more than one connection as they move between locations. While in the office, they may connect via Ethernet cable or WiFi, and then move to a location that is served by 3G cellular data services, a public WiFi/WiMesh network, and eventually even WiMax. Companies must implement a strategy that takes into account the needs of the users for connectivity and provide access to multiple networks as needed, either directly (e.g., T-Mobile, Verizon, Sprint, UUNET, etc.) or through an aggregator (e.g., iPass, GRIC, Boingo). Building provider relationships should be done at the corporate level, but with enough flexibility to include exceptions for users outside the coverage of standardized providers
- *Enabling Seamless mobility* – being able to move from one connection type to another transparently and without user intervention should be the goal of any multi-connection deployment. Mobile middleware that provides such functionality should be made a part of any deployment. Seamless roaming capability, although currently generally provided by a third party add in (e.g. NetMotion, IBM), will be a mainstream component of middleware by 2007.
- *Deploying an application* – the hardest part of mobility. Many important criteria need to be evaluated and addressed if a mobile application is to be successfully deployed.

### ***Mobile Application Deployment Decisions***

Companies must act to define their mobile application strategy in the early stages of deployment. Enterprises often allow individual lines of business, where the majority of application decisions are rightfully made, to also choose a deployment technology without IT approval. This is a mistake, as companies should standardize mobile middleware to maximize IT efficiency in deploying applications, and to allow re-use of underlying technology whenever possible. Making strategic choices for mobile deployment application infrastructure should include:

- *Stand alone or integrated* – will the application deployed to the mobile workers be a stand alone application that is bounded within the work structure of that user, or will it include connectivity to back end solutions that integrate information into the corporate back office? Although deploying stand alone applications are generally quicker, building applications integrated into the enterprise usually provided greater payback, though complexity and cost of deployment are greater
- *Mobile middleware requirement* – While all of the major application framework vendors (e.g., SAP, Oracle, IBM, Siebel, Microsoft) are enhancing their products with mobile capabilities, these capabilities are generally inferior to specialized mobile middleware (e.g., Sybase iAnywhere, Intellisync, IBM WebSphere, Extended), which offers better tools, more connectivity options and cross platform support. Longer term (3 years), the major application platform vendors will catch up, and may then be a superior choice for selected application deployments centered around that platform.
- *Underlying platform choice: .Net or Java* – We expect 65% of enterprise mobile deployments to utilize Microsoft's .Net environment as their underlying platform because of its affinity to existing Windows deployments, with 35% utilizing Java instead, primarily as an extension of existing Java infrastructure. Further, we expect some companies to utilize both .Net and Java, depending on which part of their business is being enabled, and its affinity to particular back end systems. Mobile strategies and any choice of infrastructure must be flexible enough to encompass both technologies within the organization.
- *Form factor support* – devices continue to evolve at a rapid pace. Therefore, it behooves an organization to deploy mobile infrastructure that provides maximum flexibility to support as many current and future devices as possible. Such “future proofing” will allow companies to prevent getting locked into a specific device when newer, more capable devices become available. While change is difficult, companies should nevertheless architect for change as devices, especially smart phone devices, generally only have a model life span of 6-12 months.
- *Inclusion of management* – many mobile middleware products include substantial management capability (e.g., device asset management, file update, security checking, device kill, etc.). We believe companies should address mobile management as a necessary component of any mobile deployments in the early

stages of the project, for maximum benefits. Management should be seen as a critical component of mobility, and not a process to be added on at a later date.

### ***Mobile Platform Characteristics***

Companies selecting a mobile middleware platform should evaluate the platform based on the following key criteria

- Scalability
- Support for multiple applications and application types
- Connectivity to multiple data sources (e.g., Web services, Databases, XML, HTML, Documents,
- Support for multiple device types (e.g., Windows, PocketPC, Palm, Blackberry, Symbian)
- Flexible client, both thin “browser” for full time connectivity, and thick rich client with local data store for offline use
- “Smart client” capability to compensate for the lack of reliable connections in wireless deployments
- Ease of administration and management, and management tool integration
- Rapid application deployment support/tools allowing build once and deploy to many device types, as well as easy modification of existing deployments
- Security (e.g., access, authentication, data protection) both for the device and for connectivity to back office applications

### ***Who’s Deploying Mobility?***

While there are examples of mobile/wireless deployments in nearly all industries, there are several industries that seem to be deploying earlier and/or in greater numbers. Included in these industries are

- Financial Services, Insurance,
- Pharmaceuticals,
- Logistics/delivery,
- Manufacturing (especially in shop floor or warehouse applications),
- Medical (many pilot deployments but relatively few massive deployments), and
- Retail (primarily in roaming POS systems and RFID).

These deployments are used in

- Field Force Automation (e.g., scheduling, trouble ticketing, logistics, paging),
- Mobile Office (e.g., email, PIM),
- Sales Automation (e.g. order placement/checking, CRM, SFA),
- Specialized Functions (e.g., utility meter reader, public safety, medical, inspections, insurance adjusters), and
- Embedded applications (e.g., RFID for asset tracking/management, telematics, vending machines, autonomous devices).

### ***Investment and Return***

Typical investments for mobile deployments range from \$250K to \$500K for line of business solutions, though there are clearly many larger projects running several millions of dollars and encompassing an entire enterprise. Typical deployment times are 6-12 months for medium size projects, and 1-2 years for large projects. While there are smaller projects being deployed, these so called “quick start programs, costing \$25K-\$50K are generally of very limited scope with a limited number of users and limited customization. These programs are valuable when looked upon as learning or pilot projects, but generally are not final deployments. Although the average number of seats deployed currently is in the 100-200 seat range, we see this steadily growing, and within 2-3 years, we expect the average number of seats to be 500-1000 per deployment. Generally, paybacks of 15%-20% are considered a good investment, although paybacks much higher (100%+) have been demonstrated on some projects. Finally, ROIs of 18-24 months for medium scale projects are recommended (2-3 years for enterprise scale projects), as the technology continues to evolve and investments will need to be made to update technology on an ongoing basis for the next 5-7 years.

### ***Conclusion***

Enterprises are going mobile at an accelerated pace. Companies that fail to keep up with this important technology run the risk of being at a serious competitive disadvantage. Companies should choose their mobile technologies carefully and build a strategic plan that takes into account many factors around devices, middleware, connectivity, application platforms, etc. The market continues to evolve, so flexibility will be a key ingredient in any successful mobile strategy, with the need for continuous re-investment to stay current. Security will remain a major concern and a key deployment requirement for any successful mobile deployments. Only those companies who plan strategically and make the right tactical choices will achieve true reward from their mobile application deployments.

### ***About the Author***

Jack E. Gold is Founder and Principal Analyst at J.Gold Associates. Mr. Gold has over 35 years in the computer and electronics industries, including work in imaging, multimedia, technical computing, consumer electronics, software development and manufacturing systems. He is a leading authority on mobile, wireless and pervasive computing, advising clients on business analysis, strategic planning, architecture, product evaluation/selection and enterprise application strategies. Before founding J. Gold Associates, he spent 12 years with META Group as a Vice President in Technology Research Services. He also held positions in technical and marketing management at Digital Equipment Corp. and Xerox. Mr. Gold has a BS in Electrical Engineering from Rochester Institute of Technology and an MBA from Clark University. He can be reached at [jack.gold@jgoldassociates.com](mailto:jack.gold@jgoldassociates.com).