



Enterprise Mobility Barometer

Manufacturing Industry



Overview

Enterprise mobility has emerged as a top strategic initiative among leading global organizations. To benchmark the current state of Enterprise Mobility adoption, Motorola's Enterprise Mobility business (EMb) conducted independent research among a representative sample of enterprise mobility decision-makers, the chief purchasers of enterprise mobility solutions and various mobile workers within enterprise and commercial businesses.

The purpose of this research and market trends study was to better understand the Information Technology (IT) environment and business strategy concerning enterprise mobility systems and mobility applications.

Key research areas of focus include:

- **How are various enterprises and different segments of mobile workers utilizing enterprise mobility solutions?**
- **Which mobile and wireless technologies have penetrated the enterprise and what are the expectations for 2008?**
- **Which vertical industries are adopting mobility solutions and why?**
- **What business applications are driving mobile workforce investments?**

Enterprise Mobility Market Barometer

The Enterprise Mobility Market Barometer provides the industry's deepest view into the IT decision-maker and mobile worker mindset via direct feedback from over 6,000 IT decision-makers and more than 2,500 mobile workers. The Enterprise Mobility Barometer provides an understanding of both the opportunities and challenges that mobility poses to enterprises today.

Manufacturing participants represented a relevant cross-section of manufacturing firms, including companies in the aerospace and defense, automotive, chemicals, consumer packaged goods, energy and utility, high-tech, oil and gas, pharmaceutical, retail, and transportation sectors.

The mobility decision-maker respondent sample includes CEOs, VPs, CIOs, IT Directors, Operations Managers, Facilities Managers, and IT Managers with a key focus on mobility drivers, technology and application spend and technology penetration. The mobile worker respondent sample includes CEOs, VPs, Directors, LOB Managers, Operations and Field Personnel with a key focus on mobility viewpoints, applications and technology utilization.

Research participants were carefully screened for many key industry, purchasing and decision-maker attributes. The mobility decision-maker participants were required to be knowledgeable about the organization's IT budget or strategy and have knowledge of or responsibility for the support/operations of the organization's IT systems. The mobile worker respondents were required to be employed for a function whereby they work away from their primary enterprise environment and be an active user of enterprise-procured and managed mobile devices and mobile applications.

Enterprise Mobility Viewpoints

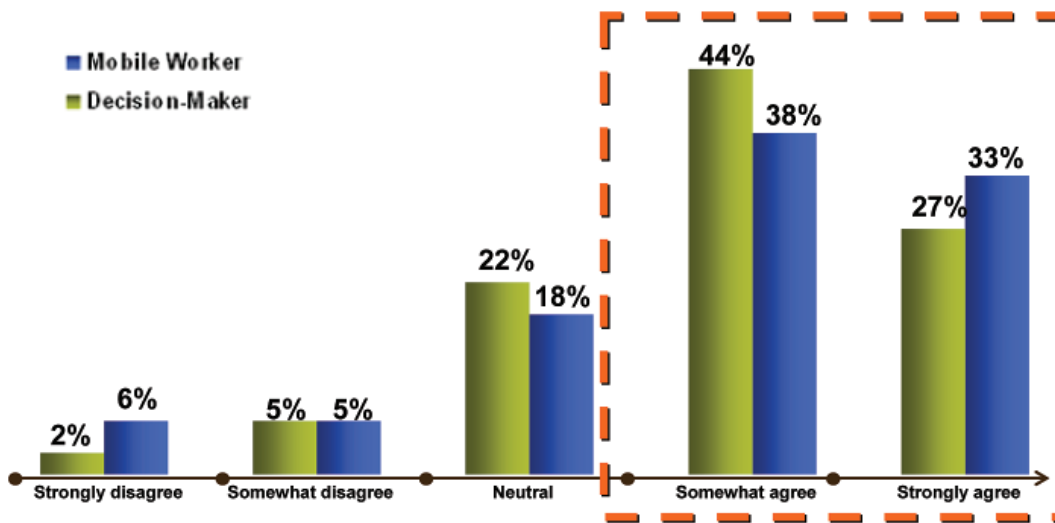
As highlighted in **Exhibit 1**, according to the Enterprise Mobility Market Barometer, mobility has risen in importance in the enterprise IT agenda. An overwhelmingly majority (71%) of mobility decision-makers and mobile workers stated that mobility is more important to their enterprise today than it was in the previous year.

Macro-economic trends are putting pressure on manufacturing operations to become more efficient. According to the Enterprise Mobility Market Barometer, manufacturing mobility decision-makers indicated that high return-on-investment (ROI) has been found in task-worker mobility applications such as preventive maintenance, asset

management and tracking, and data collection. These applications can all be automated and mobilized to gain maximum efficiencies.

The Enterprise Mobility Market Barometer also highlights a higher adoption of mobile technologies in discrete manufacturing reflective of the higher labor component. Key discrete manufacturing industries include the manufacture of transportation equipment, such as motor vehicles, aerospace, rail and ship; and the manufacture of computer and electronic products, industrial and electrical equipment, medical equipment and supplies, and other discrete products such as metals and furniture.

Exhibit 1. Decision-Makers and Workforce See Rising Importance of Mobility



Source: Enterprise Mobility Barometer, 2007

Q: "Mobile technologies are more important to my organization today than they were last year."

Enterprise Mobility Investment Strategy

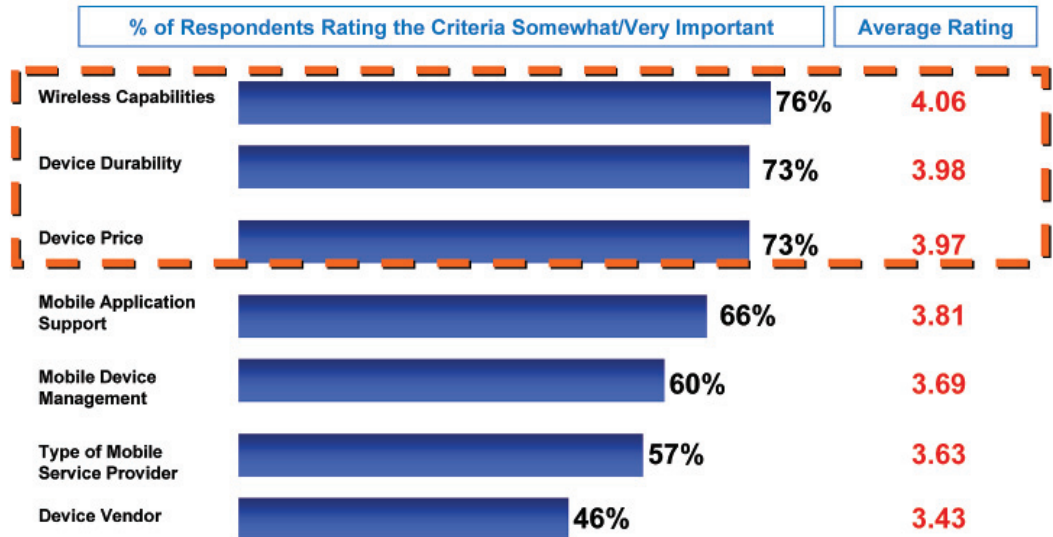
To gauge the key decision-making strategies for enterprise mobility devices and ascertain the most important evaluation criteria, surveyed manufacturing mobility decision makers were requested to rate the following attributes on a scale of 1-5, with 1 as not important and 5 as very important. As detailed in **Exhibit 2**, 76% of respondents cited wireless capabilities, such as cellular and enterprise Wi-Fi investments, as somewhat/very important (4.06 average rating).

Device durability and device price were cited by 73% of respondents as somewhat/very important (3.98 and 3.97 average rating, respectively).

Key secondary importance ratings include mobile application support which was cited by 66% as somewhat/very important (3.81 average rating) and mobile device management which netted an average ranking of 3.69 with six in 10 respondents rating it as somewhat/very important.

Exhibit 2. Enterprise Mobility Device Importance Ratings

Q: “Which of the following criteria does your organization find MOST IMPORTANT when evaluating mobile devices? (1=Not Important, 5=Very Important)



Source: Enterprise Mobility Barometer, 2007

Enterprise Mobility Drivers And Challenges

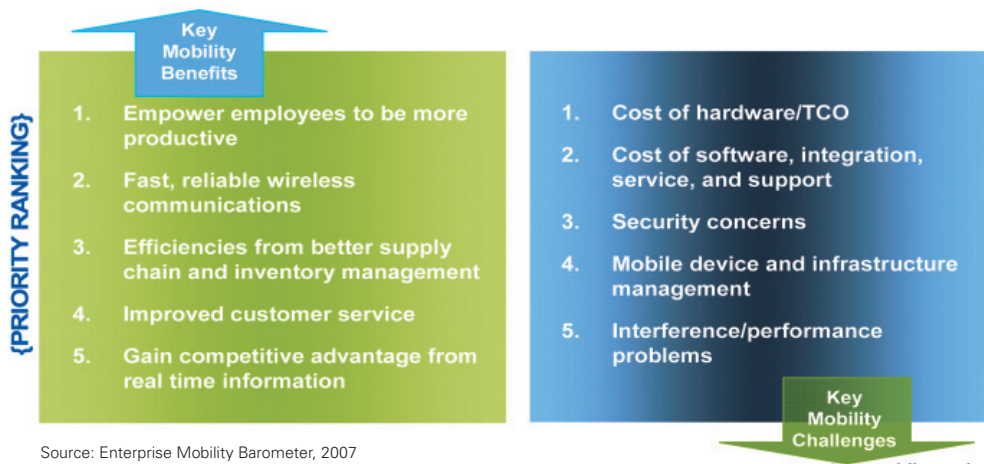
Manufacturing mobile workers and mobility decision makers outlined key shop floor and in-building mobility benefits such as more efficient utilization of workers and diagnostic equipment. Increased access to and availability of data leads to lower operational costs and reduced down time of key assets due to unforeseen breakage and delayed maintenance cycles.

Key field-based benefits include real-time inventory and order status checks, which enable real-time visibility into competitive pricing and inventory consumption to optimize inventory and trigger replenishment activities.

Exhibit 3 summarizes the key mobility benefits and challenges relating to the deployment of mobile and wireless technologies. Key benefits cited by manufacturing mobility decision makers include employee empowerment for heightened productivity, fast wireless communications, supply chain and inventory management efficiencies, improved customer service, and competitive advantage/differentiation from mobile access to real-time information.

Key deployment challenges include mobile hardware costs, integration costs, security and interference concerns, and device/infrastructure management. Several respondents cited that many processes are still prohibitively expensive to fully automate with hardware-based sensors and actuators for closed-loop control of production.

Exhibit 3. Enterprise Mobility Benefits and Challenges, Manufacturing Industry



Q: “What are your organization’s key benefits and challenges with regard to the deployment of mobile and wireless technologies?”

In fact, the manufacturing industry lags behind several other industries as mobility has not been adopted in a majority of applications where it could provide a significant return on investment.

Exhibit 4 highlights that an overwhelming majority (55%) of manufacturing mobility decision-makers allocate less than 15% of IT spend toward enterprise mobility solutions – significantly lagging the overall market.

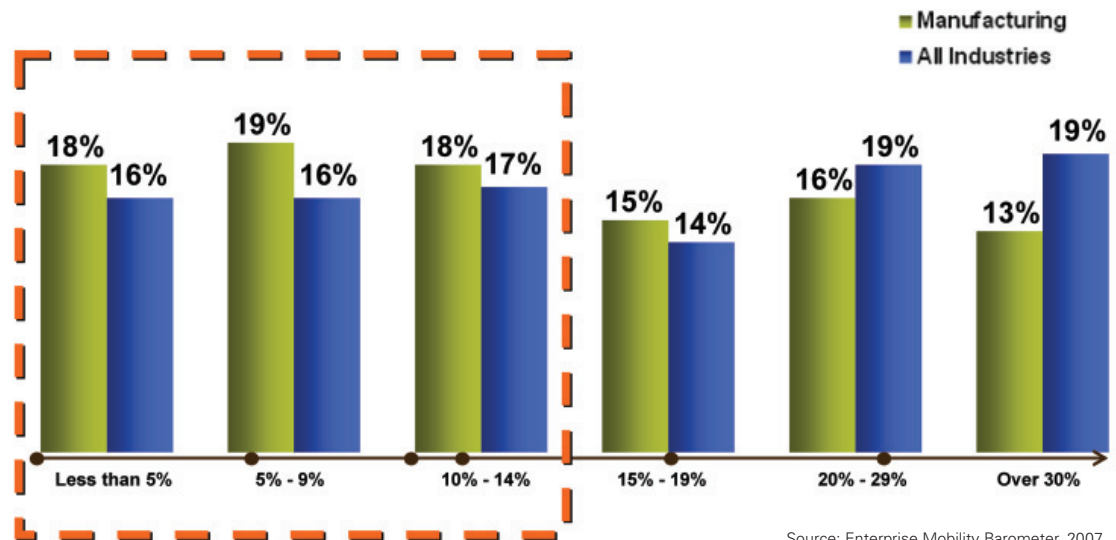
On average, according to the Enterprise Mobility Market Barometer, manufacturing mobility

decision makers allocate 15.9% of their IT and telecom budget for mobile and wireless technologies – under pacing the mean industry peer average of 18.5%.

Manufacturing mobility decision-makers were optimistic that future mobility investments would be more driven by the enablement of lean planning and execution processes. Mobile decision-makers cited that enterprise mobility applications fit well with lean strategies as they focus on the reduction of space and labor requirements.

Exhibit 4. Enterprise Mobility Spend, Percentage of Overall IT Spend

“Q: “What percentage of your organization’s annual IT budget is currently committed to mobile and wireless technologies?”



Source: Enterprise Mobility Barometer, 2007

The Mobility Impact

As outlined in **Exhibit 5**, key investment-driving mobility applications among manufacturing mobility decision makers include inventory/materials management (15%), maintenance/repair (13%), quality control/quality assurance and plant operations (9%).

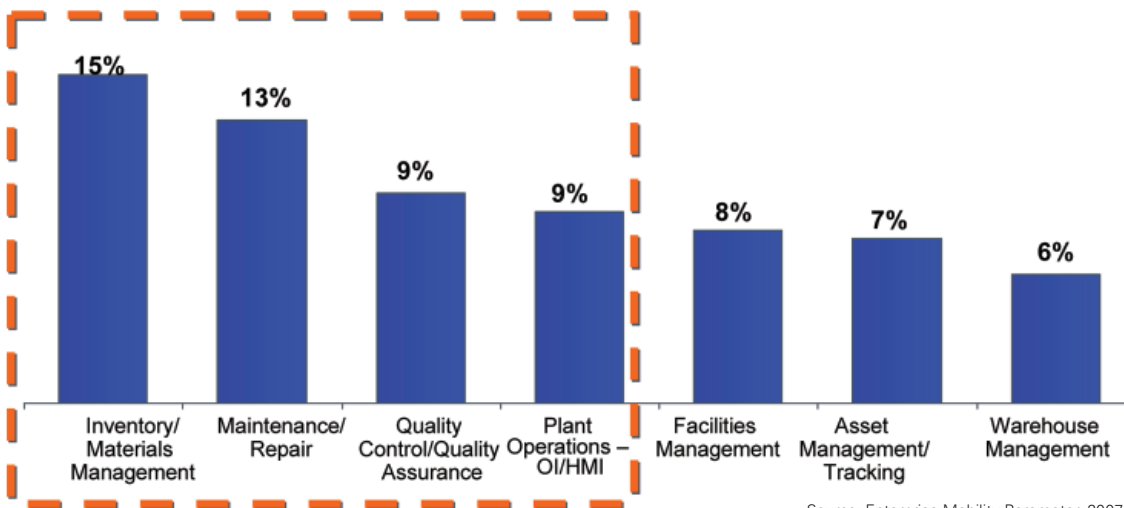
Within inventory/materials management mobility applications, for example, inventory data is collected via mobile computers and fed into enterprise systems keeping track of work-in-process (WIP) inventory.

Mobile maintenance/repair solutions, one of the more established mobile applications in the manufacturing segment, allow maintenance workers to remotely access a machine's maintenance history and designs.

Quality control/quality assurance mobility applications provide shop-floor workers the ability to document plant operations via a mobile device to ensure quality and regulatory compliance. Key cited benefits include a drop in quality control bottlenecks, a reduction in waste and giveaways, an increase in quality visibility, and an improvement in audit and regulatory compliance.

Plant operation applications provide workers access to Programmable Logic Controller Systems (PLCs), Supervisory Control & Data Acquisition (SCADA) systems, and human-machine interface (HMI) applications. The primary functionality of these applications is mobile reporting and monitoring.

Exhibit 5. Key Enterprise Mobility Manufacturing Industry Applications



Source: Enterprise Mobility Barometer, 2007

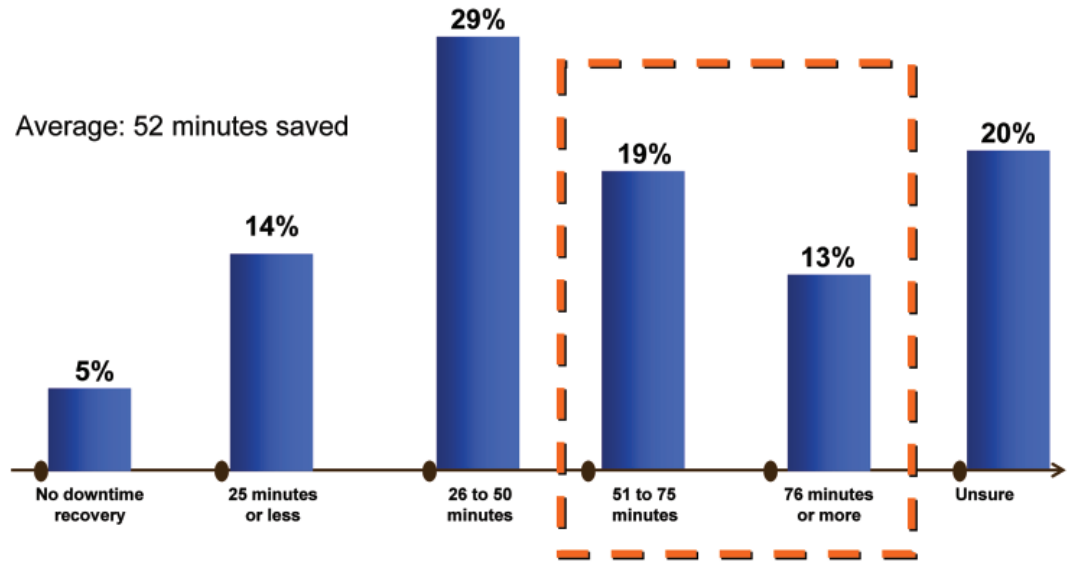
Q: “What are the KEY applications driving your mobile device investment in a manufacturing environment?”

According to the Enterprise Mobility Market Barometer, key manufacturing mobile worker segments and mobility decision makers identified that there is a high degree of effectiveness in firms that were already mobilizing several of

these applications. **Exhibit 6** highlights that nearly one-third (32%) of surveyed manufacturing mobile workers are able to recover at least 50 minutes per day due to the utilization of enterprise mobility solutions – with an average of 52 minutes saved.

Exhibit 6. Productivity Gains – Witnessed by Mobile Workers

Q: “How much downtime (minutes per day) do you recover during your working day because of your usage of mobile devices and wireless technologies?”



Source: Enterprise Mobility Barometer, 2007

Summary

Enterprise mobility has emerged as a top strategic initiative among leading global organizations as over 71% of surveyed enterprise mobility decision-makers and mobile workers believe mobility is more important today than in 2006.

According to the Enterprise Mobility Market Barometer, key manufacturing mobile worker segments and mobility decision makers identified

that there is a high degree of effectiveness in firms that were mobilizing several key applications such as inventory/materials management, mobile maintenance/repair, mobile quality control/quality assurance and remote plant operations. In fact, nearly one-third (32%) of surveyed manufacturing mobile workers recovered a minimum of 50 minutes per day utilizing enterprise mobility solutions.



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