

Mobile Business Applications

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INTRODUCTION

As an increasing number of organizations and individuals are dependent on mobile technologies to perform their tasks, various mobile applications have been rapidly introduced and used in a number of areas such as communications, financial management, information retrieval, and entertainment. Mobile applications were initially very basic and simple, but the introduction of higher bandwidth capability and the rapid diffusion of Internet-compatible phones, along with the innovations in the mobile technologies, allow for richer and more efficient applications.

Over the years, mobile applications have primarily been developed in consumer-oriented areas where products such as e-mail, games, and music have led the market (Gebauer & Shaw, 2004). According to the ARC group, mobile entertainment service will generate \$27 billion globally by 2008 with 2.5 billion users (Smith, 2004). Even though mobile business (m-business) applications have been slow to catch on mobile applications for consumers and are still waiting for larger-scale usage, m-business application areas have received enormous attention and have rapidly grown. As entertainment has been a significant driver of consumer-oriented mobile applications, applications such as delivery, construction, maintenance, and sales of mobile business have been drivers of m-business applications (Funk, 2003).

By fall of 2003, Microsoft mobile solutions partners had registered more than 11,000 applications including e-mail, calendars and contacts, sales force automation, customer relationship management, and filed force automation (Smith, 2004). However, in spite of their huge potential and benefits, the adoption of m-business applications appears much slower than anticipated due to numerous technical and managerial problems.

BACKGROUND

M-business applications can be classified into two distinct categories in terms of target groups: vertical and horizontal target group (Paavilainen, 2002). Vertical targets are typically narrow user segments, such as filed service engineers or sales representatives. On the other hand, horizontal targets are a massive number of users. For example, mobile e-mail, mobile bulletin board, and mobile calendar are applications for a horizontal target group, while mobile recruitment tools, mobile sales reporting, and mobile remote control represent vertical applications (see Table 1). Generally, the goal of horizontal applications is to improve communication and streamlined processes in horizontal procedures, such as travel management and time entry. In contrast, the goal of vertical applications is to improve and solve business processes in more detailed and specific areas such as the needs of sales departments. Various vertical and horizontal applications are currently used in a number of industries. Table 2 provides examples of m-business applications in various industries.

THE IMPACTS OF MOBILE BUSINESS APPLICATIONS ON BUSINESSES

The advantages of using m-business applications are mobility, flexibility, and dissemination of m-business applications (Nah, Siau, & Sheng, 2005). Mobility allows users to conduct business anytime and anywhere, and flexibility allows users to capture data at the source or point of origin. In addition, m-business applications offer an efficient means of disseminating real-time information to a larger user population, which consequently enhances and improves customer service. According to Gebauer and Shaw (2004), users valued two

Table 1. Examples of vertical and horizontal mobile business applications (Paavilainen, 2002)

Vertical Mobile Applications	Horizontal Mobile Applications
• Mobile e-mail • Mobile bulletin board • Mobile time entry • Mobile calendar • Mobile travel management • Mobile pay slips	• Mobile recruitment tools • Mobile tools for filed engineers • Mobile sales reporting • Mobile supply chain tools • Mobile fleet control • Mobile remote control • Mobile job dispatch

Table 2. Examples of various mobile business applications (Sources: Chen & Nath, 2004; Collett, 2003; Dekleva, 2004)

Hotel	- Embassy Suite: Maintenance and housekeeping crews are equipped with mobile text messaging devices, so the front desk can inform the crew of the location and nature of the repair without physically locating them. - Las Vegas Four Seasons: Customer food orders are wirelessly transmitted from the poolside to the kitchen. - Carlson hotels: Managers use Pocket PCs to access all of the information they need to manage the properties in real-time.
Hospital & Healthcare	- Johns Hopkins Hospital: Pharmacists use a wireless system for accessing critical information on clinical interventions, medication errors, adverse drug reactions, and prescription cost comparisons. - St. Vincent's Hospital: Physicians can retrieve a patient's medical history from the hospital clinical database to their PDA. - ePocrates: Healthcare professionals receive drug, herbal, and infections disease information via handheld devices.
Insurance	Producer Lloyds Insurance: Field agents can assess the company's Policy Administration & Services System (PASS) and Online Policy Updated System (OPUS).
Government	Public safety agencies can access federal and state database and file reports.
Manufacture	- General Motors: Workers can receive work instructions wirelessly - Celanese Chemicals Ltd.: Maintenance workers are able to arrange for repair parts and equipment to be brought to the site using wireless Pocket PCs. - Roebuck: Technicians can communicate and order parts directly from their job location instead of first walking back to their truck.
Delivery Service	UPS & FedEx : Drivers can access GPS and other important information in real-time

things most in m-business applications use: notification, especially in connection with high mobility, and support for simple activities like tracking. The study suggested that the combination of mobility and the frequency with which each task occurred is a primary indicator of the usage of m-business applications.

M-business applications have shown significant impacts and created enormous business values. For example, m-business applications have improved operational efficiency as well as flexibility and the ability to handle situations to current operations (Chen & Nath, 2004; Gebauer & Shaw, 2004). In addition, m-business applications allow users to have access to critical information from anywhere at anytime, resulting in greater abilities to seize business opportunities.

It is very difficult to measure the direct impact of mobile business applications in *productivity* statistics, but according to an OMNI (2005) consulting report, financial services agents executed approximately 11.4% more trade options on an annualized basis with mobile business applications and achieved an average nominal improvement of 3.1% in overall portfolio performance. Also, health care and pharmaceutical filed sales representatives conducted an additional 8.3 physi-

cal briefings per week due to mobile business applications. Finally, insurance-filed claims adjusters handled an additional 7.4 claims per worker per week and improved payout ratios by an annual yield of 6.4% per adjuster using mobile business applications. Table 3 provides a list of values created by mobile business applications.

FACILITATORS AND INHIBITORS OF MOBILE BUSINESS APPLICATIONS GROWTH

Several factors are expected to contribute to the continued growth of m-business applications. Across the globe, mobile devices such as Internet-enabled mobile phones and personal digital assistants (PDAs) are gaining rapid popularity among businesses and consumers. This rapid penetration of mobile devices can provide strong support for mobile business applications. Employees' demand to access critical business processes and services from anywhere at any time is also a significant driving factor for m-business applications (Chen

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