

Going Wireless: Migrating From E-Business to M-Business

Chian-Hsueg Chao

Department of Information Management, National University of Kaohsiung,
Kaohsiung, Taiwan, ROC
cchao@nuk.edu.tw

Abstract

The challenge of globalization the ability to respond quickly according to changes in market demands and competitions, is the driving force for organizations to optimize their business strategies and operations regularly. Customer preferences and needs change constantly, resulting in pressingly intense competitions. Time sensitive real-time transaction is becoming the common denominator for successful businesses. Information also needs to be available to anyone from anywhere at anytime. As the global economy shifts toward the mobile economy, enterprises need to be progressively more flexible and globalize. Mobile businesses open up new opportunities for innovative enterprises and give them new means of communications with customers and employees. In a changing business landscape, mobile business addresses new customer channels and integration challenges. This paper provides a broad discussion on the changing landscape of business: from e-business to m-business. Several issues will be addressed, such as value chain, the data access of mobile computing, m-business application framework, and the future development of mobile computing (e.g. 4G wireless). All of these efforts attempt to provide an overview and schematics for the integration of modern e-business application strategies into future m-business practices. This paper will show that any innovated business strategy should be built upon target stakeholders. With mobile technologies, enterprise applications will go beyond the four walls of organizations to a workforce on the move.

1. The Emerging Mobile Economy

Internet technology is presently changing communications to the same degree that PC technology reshaped the computing world twenty years ago. Today, e-business is rapidly expanding into a complex web of commercial activities transacted on a global scale between an ever-increasing number of participants, corporate and individual, on global open networks. A successful e-business is concerned with building new kinds of relationships with customers, employees, business partners, investors, regulators, consultants, and all other participants in business life. The most significant economic consequence of this evolution will be increased real-time interaction between organizations and their employees, trading partners, and customers. In the 1990s, a silent paradigm shift affected many business

sectors in the world economy. The emerging mobile technologies with Internet capabilities that connect numerous devices and information portals represent a new phase in enabling intelligent mobile workforces [1]. As a result, a substantial new creative cycle and innovation on the marriage of the Internet, wireless technologies and e-business is another new challenge to today's enterprises. The "mobile business" or "m-business" is an extension of e-business. The m-business is facilitated by the integration of the Internet, e-business, and the wireless world where customers can go online with any device at anytime from anywhere [2].

Today, enterprises focus on how to use mobile technology to provide customers with rich service experiences and greater satisfactions. Currently, accessing the web through a wireless device is different than accessing the web through wired connections. The mobile Internet business is in its early stages of development, so no real framework has been available to provide a systematic way to explore opportunities or problems. Nevertheless, similar to its predecessor (the e-business infrastructure), the mobile application infrastructure can be laid out easily and also include four different areas: mobile application platform providers, mobile Internet service providers, mobile application service providers, and system integrators. The usefulness of the mobile channel will be largely driven by new applications that enhance the overall customer value.

2. Defining New Market Value

The m-business is facilitated by the integration of the Internet, e-business, and the wireless world where people can go online with any device at anytime from anywhere. To embrace this vision, a new value chain is emerging that focuses on the belongings of mobile devices, wireless access, and contents. However, to create multi-channel and multi-technology solutions in a fast-moving and technologically indefinite mobile environment is difficult and extremely risky. A number of mobile devices, closed networks, disparate carrier/server systems, protocols, and solutions characterize today's wireless landscape. Currently, the fastest way to access the Internet on the move is through the IEEE 802.11b (Wi-Fi) standard. Overall, 802.11 (Wi-Fi) in its various forms (a, b, and g) has emerged as the winner in wireless LAN technology [3]. However, the problem with wireless LAN-based access is that the access points or base stations have a very short range, which means they're restricted to a few "hotspots," such as hotels, conference centers, and

airport. The situation gets more complex when the wireless LAN is mobile.

The fourth-generation (4G) cellular services intend to provide mobile data rates of 100Mbps or more. This 4G is an entirely packet-switched network that all network elements are digital with higher bandwidths to provide multimedia services at lower cost. In 4G mobile IP, each cell phone is assigned a permanent “home” IP address, along with a “care-of” address that represents its actual location. When a computer somewhere on the Internet wants to communicate with the cell phone, it first sends a packet to the phone’s home address. A directory server on the home network forwards this to the care-of address via a tunnel, as in regular mobile IP. The directory server also sends a message to the computer informing it of the correct care-of address, so future packets can be sent directly. This should enable TCP sessions and HTTP downloads to keep going as users move between different types of networks. The ultimate 4G would be full on-demand capability, Wi-Fi to WAN roaming, and have it as a true IP network. Currently, the Japanese government required all of Japan’s ISPs to support IPv6 by 2006, to coincide with the launch of 4G. Countries in Europe and Asia are considering similar regulatory action. NTT DoCoMo (provides i-mode service) also hopes that true mobile broadband will enable them to replace fixed access entirely, and they plan to have a 4G system operational by 2006. A business that creates m-business applications can benefit from the first-to-market advantage. As the wireless Internet continues to expand, first-to-market organizations will have already secured a customer base. It can be foreseen that the m-business market value will be astronomical.

3 The M-Business System Architecture

Seeing m-business processes in terms of a net value added chain is also an approach for visualizing current and identifying future competitive advantages. In short, the creation of these values depends on the enterprise’s ability to link and coordinate these internal/external activities efficiently [4]. This interconnected value chain system can act like a supply chain that encompass the modern business world, and participating organizations can readily extend their technologies to their partners. The m-business supply chain practices are just like e-business supply chain practices with the exception of mobility. This is a more real picture about business, because business opportunities occur in anywhere at anytime.

With the convergence of B2B, B2C, SCM, CRM, ERP, Business Intelligence, and real-time relationship management, the personalization of customer information is now possible. The IP convergence strategy will provide a solution that joins the two worlds of voice communications (telephony) and data traffic together. Technologies, such as interactive voice response (IVR), computer telephony integration (CTI), are beneficial to selling chain management. The fully interactive nature of the Internet changes everything in the world of self-service. The blending of Sales Force Automation (SFA) with customer self-service brings new business opportunities. Relevant information and intelligence support processes all can be aligned and implemented in real-time at anywhere. The application and technological framework of m-business to facilitate these highly interactive communications is summarized in Figure 1.

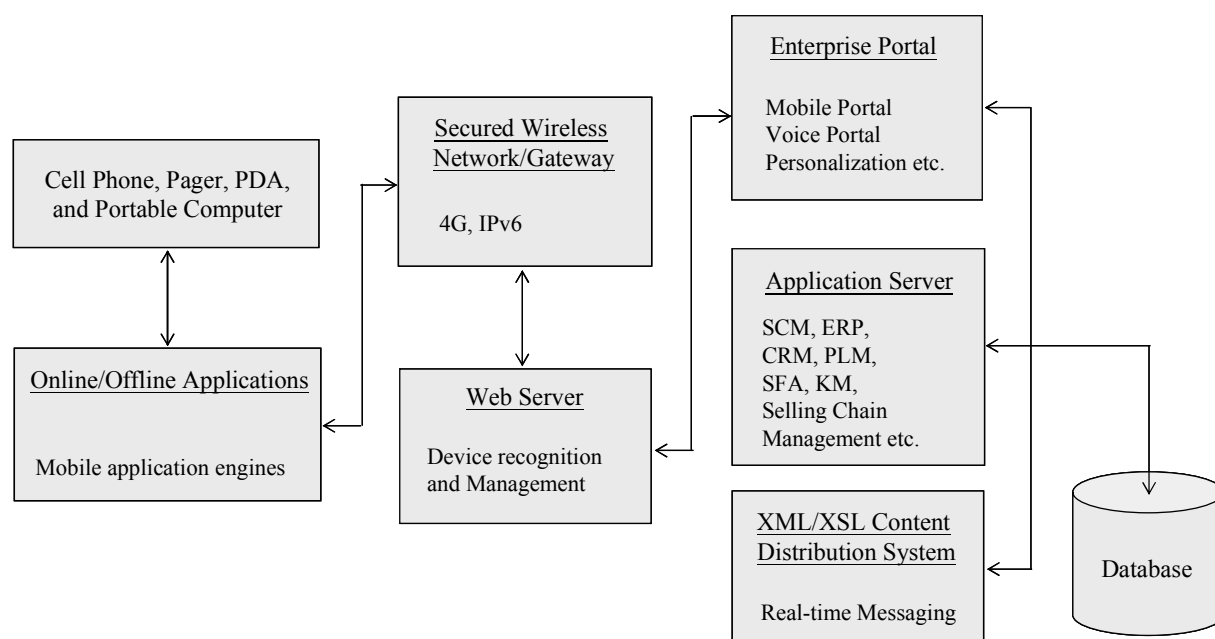


Figure 1 m-Business Application Framework

This framework extends existing business applications such as ERP, CRM, and mobile workforce applications to wireless devices.

In this framework, several dedicated servers and databases are required, because enterprise must capture and retain in a central/distributed data repository the data and information that employees need. A selling chain management suite for customer care applications enables new kinds of interactions, new kinds of information, and comprehensive access to all customers and enterprise portals. This customer care can foster joint problem-solving, and convenient self-service. Given the information customers need in the purchasing process. The reasons to stress on 4G and include in this framework are (a) it has wider bandwidths, higher bit rates, (b) it support interactive multimedia services, teleconferencing, wireless Internet, etc., (c) the global mobility and service portability, and (d) scalability of mobile networks. For knowledge management issues, the architecture of IT in the knowledge management system is concerned with organizing and analyzing information in an enterprise's database so this knowledge can be readily available throughout an enterprise. A central/distributed data repository that provides/captures the data and information for employees and executive decision-making is also very important in a knowledge management system. The database system is the driver that consolidates and directs the overall resources of the supply chain to the most mission-critical business activities to generate profits. As a result, an m-business supply chain solution must provide support for the capture and communication of customer demand, as well as enable this demand to automatically trigger business events and initiate process workflow. This application framework also takes advantage of XML. The XML now supports for developing mobile applications running on multiple devices and platforms [5]. Databases are also working with XML-structured data and tabular relational data. Therefore, the XML/XSL is very promising in m-business practices.

Effective m-business supply chain solution will need to deliver an accurate and common view of customer demand data as well as any subsequent events, plans, or other business data. This new supply chain framework will offer virtually unlimited business opportunities in the alignment of technologies and processes. A well-designed and well-integrated supply chain for m-business will improve upon existing cost-responsive processes, and have organizational agility in the event of change.

4. Conclusion

Multi-channel and multi-technology strategies represent the next frontier. Being the central platform for mobile applications, the next generation Internet must provide an infrastructure that allows data transfer to be fast and cost-efficient. The mobile Internet will open an important new channel for commerce. With mobile technologies, enterprise applications will go beyond the

four walls of organizations to a workforce on the move. Employees will be able to access the company's mission-critical enterprise applications, such as enterprise resource planning (ERP), customer relationship management (CRM), and supply chain management (SCM). This open enterprise is also extended to suppliers and trading partners so that when customers get in contact with the resources of an organization, they also touch upon the resources of the value chain. The usefulness of the mobile channel will be largely driven by these enterprise applications that enhance the overall customer values. With self-service applications in hand, customers will be able to touch the resource of an enterprise. It is the customers who drive the entire value chain (or supply chain), determining what is to be produced, when, and at what price. They will be able to interact with the entire business ecosystem and not just individual company, and this will mark the era of m-economy.

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