

Preface

Electronic and wireless technologies have changed the way we do business forever. We have seen fast paced change in the last decade not only in information technology advancement but also in business model design and strategic direction. Technology has become central to company operations as well as strategy. Successful companies today recognize electronic technologies and the Internet as mainstream to business success. Wireless technology is becoming increasingly important for companies seeking a means for cost cutting, enhanced productivity and improved efficiency. The future for electronic and wireless technology applications will continue to be promising to companies seeking competitive advantage.

Keeping abreast of technological advancement has never been more difficult or more important for companies as they compete in an increasingly global economy. Change comes from every direction and competitive forces surface from nontraditional sources. The dot com era forced traditional companies to think in new ways in order to remain competitive in a newly emerging marketplace. Today, business is electronic and e-business is business. Just as in the PC revolution there is a point at which there is no turning back. Computers today are a given necessity for doing business. The digital transformation has, likewise, pushed companies to a new era of electronic business. That era is being pushed a step further with the advent of wireless technologies and mobile commerce initiatives. Tomorrow, business will be mobile. These transformations will not only impact the way business is transacted but it will impact the very fabric of society.

Electronic and wireless technologies continue to evolve. Technological innovation provides opportunities for new business applications and consumer products. Standards play a big role in the direction and eventual success of new products and applications. Currently a lack of international standards has made progress difficult as telecommunications companies move along differ-

ent standards paths. Competing standards and technologies have emerged that make decision making for companies more difficult as they plan for technology advancements. Europe and Asia (Japan) have advanced in wireless technology faster than the US and other parts of the world. Movement toward third generation (3G) technologies has been slower than expected due to the high cost of building out networks and the uncertainty in demand to recoup the costs. In the US, for example, the trend to move toward 2.5G was based on lower costs to implement than would be required for 3G. Japan and Europe have moved more quickly down the 3G path but not without tremendous cost in license agreements and network expense. Wi-Fi and the development of hot spots around the US have progressed with some success. Cost is a major consideration in these decisions but it is unclear how all these technologies will evolve in the future and which will eventually win out. Companies are taking fewer risks and testing the waters more cautiously in the wireless technology realm. Uncertain economic conditions have also contributed to the confusion and proliferation of standards and technologies. The consumer perspective has not helped, as the demand for wireless technologies and devices has not been as substantial as was expected. Worldwide trends and market conditions will continue to evolve and play a significant role in the future direction of electronic and wireless technology applications.

Currently, successful mobile commerce strategies have focused on applications and opportunities inside the organization. These applications have greater potential for return on investment than those directed toward consumer commerce. It is not difficult for companies to make the business case for wireless technology applications inside the company that meet objectives for cost savings, enhanced productivity, and increased efficiency. For example, sales force automation and field force automation are key areas for companies to target for return on investment. Wireless technology makes it possible for sales personnel to get critical information on clients and products while away from their desks. This saves time, improves customer relationships, and increases revenue and profitability. Field force personnel can get access to schedules, forms that need to be completed on the job, and product information from their handheld devices. This can cut labor costs and reduce the extra time and cost of inputting data more than once. Data can be captured at the point of access, which will also reduce error rates. Wireless technology is also being used in the warehouse to keep inventory current and to improve accuracy. This translates into happier customers. Wireless LANs have also been implemented to improve efficiency in the workplace. In addition, companies can now wirelessly track their assets through Radio Frequency Identification (RFID) technology.

This technology is expected to replace bar codes when the price point reaches an affordable level. Product information can be stored on these tags that track the product along the supply chain and keep track of important information that was not before possible. Combined with location technology, company assets can be located at any point in time. Telemetrics allows companies to wirelessly access information and monitor status levels at all times. For example, electricity meters can be read through wireless technology, eliminating the need for a person to read each meter manually. Layers of labor may be eliminated with some applications providing additional cost savings. Machines can be monitored at a distance and alerted when there are problems detected. For example, the toner in a printer can be monitored and the company's suppliers notified to place an order without the intervention of a human. Wireless Customer Relationship Management (CRM) is still another avenue for companies to exploit. Wireless technology provides another channel to interact with the customer. There are challenges from the marketing perspective but the potential is real if implemented correctly.

From a consumer perspective, wireless technology has not taken off to the degree expected, especially in the United States. In Europe, short message system (SMS) was the driver for wireless devices. In Japan, entertainment, ring tones, and wireless icons pushed mobile consumer commerce forward. In the US market, consumers are still waiting for the killer application. The demand for wireless has been slow to gain momentum because consumers do not see a pressing need. Mobile payments are expected to be one means for pushing mobile business forward. Currently, security is an issue for many applications and privacy issues play a role in acceptance of applications such as location-based services. Consumers are skeptical about technologies that can track their location at all times. Applications that provide for safety such as e-911 and information availability that is timely such as local directions will be most likely to succeed in the US consumer market. The consumer market has experienced an increase in wireless access through laptops, personal digital assistants (PDAs), and cell phones. There has also been an increase in households that have wireless networks. As these trends continue, acceptance of mobile commerce applications will increase as well.

Currently, worldwide trends indicate a period of transition from mainstream electronic business to mainstream mobile business. It is unclear how long this transition will take. The eventual movement to 3G and 4G networks will provide the infrastructure for companies to move forward with wireless technology applications. As will be discussed in the chapters that follow, many issues remain to be addressed that have surfaced as a result of these techno-

logical advancements. The enabling technologies will also undergo improvements that will further enhance their usefulness. New technologies will continue to proliferate and further complicate the existing platforms and infrastructure. Voice integration, for example, will emerge to play a role in future mobile technology applications. Technology can be expected to continue to change and evolve as well as play an increasingly significant role in the strategic direction of companies.

Organization of the Book

The book is organized into four sections with 11 chapters. Section I addresses the role of Customer Relationship Management (CRM) in the context of Internet and mobile commerce channels. CRM has become increasingly important for companies as electronic and wireless technologies have provided new opportunities to interact with customers. The evolution of CRM from traditional systems to e-CRM to wireless CRM has provided companies with both new challenges and new opportunities for developing innovative customer strategies. Companies in the digital era have been forced to reinvent their companies from the customer perspective. Chapter 1 addresses a broad array of issues related to evolving CRM systems and potential research directions.

Section II addresses specific issues related to wireless technologies and mobile commerce. Specifically, Chapter 2 addresses the issues of information presentation on handheld devices. This issue has been significant from the consumer perspective. Information must be packaged in ways that limit the amount of information that must be read by the end user but at the same time provide value in timely information. The authors address the issues of human interface and interaction in this context. Chapter 3 addresses the critical issue of making payments on mobile devices. Many believe solutions to mobile payments may be a driving force behind mobile commerce. In this chapter the authors examine the various options for mobile payments and resulting challenges. Standards, security and consumer acceptance are discussed in this context. Chapter 4 examines the issues associated with 3G multimedia services specifically from the perspective of the Italian market. Conclusions from the study can be compared and applied to other markets. Lessons learned may be relevant for other markets. Finally, Chapter 5 addresses a broad perspective on wireless technology and mobile commerce for developing countries. Developing countries have found it advantageous to leapfrog traditional

technologies through the use of wireless applications. The authors provide specific examples of how these technologies are being implemented and the development of new business opportunities afforded by these technological advancements.

Section III takes a more focused look at specific technologies and issues relevant to the digital age in general. Chapter 6 examines digital watermarking technology in the context of specific applications and potential problems. The authors explain the specifics of the technology and its potential benefits. Chapter 7 addresses digital rights management and the issues related to the protection of intellectual property in digital format. The authors develop a domain model to provide insights on issues and future trends. Chapter 8 looks at the dynamic nature and role of ad hoc networks. Change rates are examined in the context of these networks that form, change and dissolve in an ad hoc way routinely. The authors examine the impact of these networks on network functionality.

In Section IV, the focus shifts to specific issues relevant to electronic business. In Chapter 9 the authors report results of an empirical study that measures the loyalty of Internet shoppers to online companies. Based on the findings, the authors provide recommendations for online companies. In Chapter 10, findings of a study on managers' perceptions of the benefits and difficulties of Internet use in hotels is discussed. Finally, a case study is presented in Chapter 11 that addresses the pros and cons and other issues relevant to reverse auctions.

A strength of the book is its international flavor. Authors of the chapters are from a variety of countries all over the world. This gives the reader perspectives on the issues from different world viewpoints. Culture, the role of government, legal environments and other differences among countries may play a key role in the direction countries take on various technologies and the significance of security, privacy, ethics and other related issues. It has become increasingly important to look at the direction of technological advancement, trends, and specific applications from a global perspective.