

Preface

M-commerce uses the potential of wireless technologies to expand the reach of e-commerce applications to any time and any place. Mobile applications can be used to support transactions with customers and suppliers and to conduct e-business within and across organizational boundaries and are becoming an integral part of an organization's strategy.

M-commerce has great potential to promote global trading and commerce across geographic boundaries. Currently, however, this great potential has been limited by different perspectives of m-commerce strategies and implementations in different regions of the world, as well as adoption of different mobile communication standards and unbalanced development of m-commerce in different regions.

While mobile technology itself aims to get rid of geographic limitations and boundaries and promote global m-commerce, differences in existing m-commerce strategies/perspectives, mobile communication standards (especially in third generation [3G] and fourth [4G] mobile communication standards), and business models, have been confusing to m-commerce service providers and investors as to how to understand those different m-commerce perspectives/strategies and mobile communication standards. In order to successfully implement global m-commerce development strategies, these issues must be addressed. This book attempts to take a first step towards bridging that gap to explore and examine those important issues from the different perspectives of the three continents: Europe, North America, and Asia.

SECTION I: EMERGING M-COMMERCE ISSUES AND TECHNOLOGIES

This section provides a discussion of general concepts, issues, and technologies that apply to the area of m-commerce. These chapters will address important concepts and future trends that provide a context for understanding m-commerce. In addition, issues such as security and important technologies are discussed.

Chapter I: From Mobility to True Nomadicity and Ubiquity: Discussing Fluidity, Metaspaces, Micromobility, and Multiple-Profiling

This chapter describes a new world of digital nomadicity, transgressing the confines of a more static type of mobile communication and collaboration. Building on the ideas of digital nomadicity, fluidity, and interactivity, the authors propose the concepts of metaspaces, transient hierarchies and multiple-profiling to round up a vision of truly nomadic and ubiquitous computing environments. Along with geographical and technological barriers or boundaries, the barriers created by local and parochial techno-social systems have to be taken into consideration in order to make us truly nomadic. A key question in the

near future is how the user of advanced mobile technology could be empowered to have more control over the multiple spaces he or she inhabits and the numerous boundary crossings that he or she is forced to perform.

Chapter II: The Future of M-Commerce: The Role of Bluetooth and WiMax

As m-commerce continues to grow, it is critical to examine future opportunities, trends, questions, and related concerns. The increasing adoption of short range technologies like Bluetooth, as well as long range technologies like WiMax, are increasingly aiding m-commerce. These technologies have increased the number of applications for mobile users and strengthened the future of m-commerce. M-commerce requires careful e-commerce adaptation to include mobile access for enhanced services and business communications that are not only anytime, but also anywhere. This chapter presents the importance of, the components and technologies involved with, the future market forecast, and key future trends and issues for m-commerce.

Chapter III: M-Commerce Payment Systems

M-commerce allows customers to buy goods from anywhere and anytime using Internet and mobile environments. The success of m-payments using mobile phones primarily depends on the privacy and security of the underlying systems. The success also depends on the trust among the key players. This chapter surveys basic architectures of m-payment systems and compares their features in the security perspective including methods for authentication, replay detection, double spending prevention, proof of receipt, message confidentiality, user privacy, non-repudiation, unforgeability, preventing overspending, anonymity, untraceability, unlinkability, fairness, refundability, dispute resolution, and divisibility. Also several other success factors critical to m-payments services are explored.

Chapter IV: Policy-Based Security for M-Commerce Networks

In this chapter an overview of a general, policy-based security architecture for securing the confidentiality, authenticity, and integrity of enterprise m-commerce data is presented. The security architecture is designed for operation in mobile environments where it provides authentication and data confidentiality and integrity security services to m-commerce systems based on a flexible and fine-grained encryption scheme customized by a scalable and extensible security policy. This chapter provides an overview of the design and components of this architecture and mentions some protocol implementations built according to the specifications of this architecture.

Chapter V: Global M-Logistics in North America, Europe, and Asia: A Comparative Study of the Diffusion and Adoption of Standards and Technologies in Next-Generation M-Logistics

Organizations have to make the movement of raw materials, goods, and services across geographic boundaries as efficient and effective as possible. In order to enable organizations to immediately react to specific events, disruptions, and exceptions, logistics has to become mobile itself. M-logistics may therefore be seen as an enabler for efficient and effective m-commerce. Little research has been done to examine the potential barriers to the implementation of global m-logistics in different continents. This chapter explores and examines the current status of m-logistics in North America, Europe, and

Asia (mainly China, South Korea, and Japan). The chapter focuses on global m-logistics as an essential function and key factor in efficient and effective global m-commerce.

SECTION II: ISSUES IN EUROPE

This section provides a discussion of the m-commerce issues and technologies within the context and environment of the European continent. These chapters will continue to address important concepts and future trends while providing insight into the unique issues that face users and companies in this area of the world.

Chapter VI: Strategy Aligned Process Selection for Mobile Customer Services

This chapter analyzes how companies define their customer value proposition and how the selection of successful mobile customer services is done in alignment with this strategic positioning. A set of five different strategic goals (price leadership, product quality leadership, customer intimacy leadership, accessibility leadership, and innovation leadership) are derived and this classification is applied to case studies of companies in countries including Switzerland, the United Kingdom, Germany, and The Netherlands.

Chapter VII: Exploring Mobile Service Business Opportunities from a Customer-Centric Perspective

Mobile services have evolved into an important business area and many companies in varying industries are offering different mobile services. This chapter develops a conceptual classification for mobile services that illustrates the characteristics of mobile services and gives indications how to describe mobile business opportunities and categorize services from a customer-centric perspective. The classification scheme, grounded in previous research, is based on the type of consumption, the context, the social setting, and the customer relationship with the service provider. The explorative classification is illustrated with two case studies of existing mobile services in the European market.

Chapter VIII: Exploring the Use of Mobile Data Services in Europe: The Case of Denmark and Greece

Many mobile operators, in pursuit of high returns on investment, upgraded their network infrastructures. They expected that this would stimulate high demand for advanced mobile services similar to those used on the Internet. However, these hopes have not been materialized in the Western world yet. It seems that mobile users are not interested or willing to massively adopt and extensively use the mobile data services (MDS) offered.

In this chapter, user perceptions and experiences from MDS are investigated in Denmark and Greece. Useful insights are provided to both researchers in the mobile domain, by underlining the importance of socioeconomic context in the use of MDS, as well as the key players in the mobile market arena, by informing their marketing campaigns and corporate strategies.

Chapter IX: The Design of Mobile Television in Europe

This chapter provides a detailed and systematic analysis of the issues for bringing mobile broadcasting to market, and of the solutions found in five major pilots throughout Europe.

One of the most anticipated applications in Europe's mobile commerce landscape is mobile TV. It is widely argued that mobile digital television has the potential of becoming one of the next high-growth consumer technologies, provided it is able to master its inherent complexities in terms of the various stakeholders required to cooperate. In the European mobile market, digital TV on a mobile device is not a novelty. This chapter explores a number of standards and technologies related to the offering of high quality broadcasts over mobile devices.

Chapter X: Mobile Business Process Reengineering: How to Measure the Input of Mobile Applications to Business Processes in European Hospitals

In comparison to the large amount of money the European telecommunication industry has invested in Universal Mobile Telecommunications System (UMTS) and third generation (3G) mobile infrastructure, there still is a very slow adoption of mobile applications in different domains. This is a result of a lack of methods to demonstrate and measure the value-creation potential of mobile business applications, and a lack of potential best practices and use cases in different domains. This chapter presents the results of a study examining a hospital's processes of drug supply in the pharmacy of the hospital as well as the meal supply in the kitchen. The economic potential that could be gained by implementing mobile terminals for the supply of drugs and meals is measured. The general conditions for the use of mobile devices in hospitals was considered, as well as the applicability of different kinds of mobile devices. Another question to be answered was where and how mobile terminals could be integrated in existing business processes. The analysis of advantages and risks that could occur during the roll-out of the mobile system was targeted as well.

Chapter XI: Mobile Automotive Cooperative Services (MACS): Systematic Development of Personalizable Interactive Mobile Automotive Services

Telematic services in the automotive sector have been rather unsuccessful in Germany over the past years. The three main reasons for discontinuing mobile services are usually mentioned: (1) the costs for data transfer were too high, (2) the services offered did not fit adequately to the users' needs, and (3) telematic services were too focused on technology and had hardly any economic aspects considered, making it almost impossible to deliver viable and sustainable services. Recent availability of new digital transmission channels such as UMTS or digital radio broadcast (DAB) and the declining prices especially for cellular radio almost eliminated the problem of transmission cost, leaving only two problems to solve. This chapter explores the question of how innovative mobile automotive services be systematically developed and structured and which steps have to be taken for deploying mobile services successfully.

Chapter XII: Cross-Cultural Consumer Perceptions of Advertising via Mobile Devices: Some Evidence from Europe and Japan

Marketing instruments using mobile devices (m-marketing) allow innovative forms of customer relationships and interaction. There is little knowledge about how consumers react to advertising via mobile

devices. This chapter analyzes the extent to which consumers differ in their perceptions of advertising via mobile devices across different cultures. In order to achieve comparable results, the study focuses on push marketing activities in the form of text advertising messages sent to consumers in Japan and Austria. Results show that Japanese students regard m-advertising as more entertaining than Austrian students do. This finding might be consistent with the Japanese strong orientation on emotions and entertainment, which might explain their better attitude toward m-advertising. On the other hand, as cultural research has shown Japanese are more liberal concerning privacy, their relatively negative perception of irritation might show a weaker influence on advertising value and attitude toward m-advertising than among the Austrians.

SECTION III: ISSUES IN ASIA PACIFIC

This section provides a discussion of the m-commerce issues and technologies within the context and environment of the Asia-Pacific continent. These chapters will continue to address important concepts and future trends while providing insight into the unique issues that face users and companies in this area of the world.

Chapter XIII: Current Status of Mobile Wireless Technology and Digital Multimedia Broadcasting

This chapter presents an overview of wireless mobile technologies and its applications, with a focus on digital multimedia broadcasting (DMB) technology. Empirical findings are presented along with actual DMB subscriber usage results. The chapter attempts to provide stimulating answers by investigating the following questions: (1) Do users perceive easy access to DMB applications as a satisfactory service offered by DMB service providers? (2) Do users perceive high-quality DMB program contents as a satisfactory service offered by the DMB service providers? (3) Are there differences between different age groups in terms of their perception of DMB phone prices, phone usage time, program contents, and services?

Chapter XIV: Understanding the Organisational Impact and Perceived Benefits of Bluetooth-Enabled Personal Digital Assistants in Restaurants

The hospitality industry, more specifically restaurants, has recently started to exploit the benefits of mobile technologies. This chapter explores the perceived benefits of using PDAs in a restaurant in a business-to-employee (B2E) context. The findings indicated that the most common perceptions are increased efficiency: speedier service: better usability and ease of use: enhanced reputation/image; and increased accuracy. Most of the negative perceptions were related to the technical shortcomings of the technology such as unreliable transmission of data, system crashes, short battery life, and limited durability of the devices. The chapter concludes with recommendations for future practice and research.

Chapter XV: Strategies of Mobile Value-Added Services in Korea

As the growth of the mobile market decreases and the market competition increases, mobile carriers have been trying to find new business models to retain their profits and expand their business boundaries. Development of value-added services provides a growth opportunity to mobile carriers. This chapter discusses the motivation of mobile value-added service in terms of value chain and mobile adoption. Value-added services presented in Korea are introduced: short messaging service, personalized call-ring service, mobile music service, mobile video service, mobile payment, and mobile games. The major characteristics of those value-added services are discussed within the context of “4Cs”: customization, content-focused, connectedness, and contemporary. This chapter also discusses DMB as a new expecting value-added service and the impacts of value-added services on mobile market.

Chapter XVI: M-Commerce Market Development Scenarios in Korea: Focus on Changes and Their Mega Trends

The growth curve of the m-commerce market is similar to that of the mobile voice market or broadband Internet service in Korea. In this chapter, trends based on technological, social, and political changes and the development scenarios of the m-commerce market are discussed. A review of the technological, social, and policy changes that have occurred in Korea is presented. Four scenarios are discussed: (1) gloomy market scenario, (2) dream market scenario, (3) market collapse scenario, and (4) rainbow compromise scenario. An analysis of the trends that could create an m-commerce market in Korea and a study of the development scenarios provide some insight to communication service providers in Korea and other countries.

Chapter XVII: Individual Telecommunications Tariffs in Chinese Communities

The chapter addresses the mobile service pricing and affordability issues in China. The goal is to assist fast diffusion and sustainable development of mobile communication services in China through pricing mechanisms. Although the industry has been on a fast track since the early 1990s, a large number of people still lack basic services; most of them are from rural areas where the tariffs of mobile services are prohibitively high compared to their incomes. Furthermore, people in the urban areas, especially in south-eastern provinces of China, are demanding a wider scope of personalized value-added services. Community-based individual tariffs and a business model which suits the community culture rooted in Chinese tradition is described.

SECTION IV: ISSUES IN THE AMERICAS

This section provides a discussion of the m-commerce issues and technologies within the context and environment of the American continent. These chapters will continue to address important concepts and future trends while providing insight into the unique issues that face users and companies in this area of the world.

Chapter XVIII: M-Commerce in the U.S. and China Retail Industry: Business Models, Critical Success Factors (CSFs), and Case Studies

This chapter investigates the current trends of m-commerce in the retail industry in an effort to establish a greater understanding and awareness of the technology, problems, business models, applications, and critical success factors (CSFs) it provides to consumer subscribers and business users. The retail segment is expected to stimulate the future growth of m-commerce with the potential to purchase goods and services, exchange financial transactions, and establish home delivery in a matter of minutes with the touch of a button and no geographical limitations. This unique business opportunity, with all of its accomplishments, potential, and uncertainties is the central focus of this discussion. The chapter concentrates on questions such as: Is m-commerce widely adopted in other countries? What kinds of technology are enabling this spread of m-commerce in the retail industry? How do the CSFs for m-commerce affect the retail business? What are some different types of m-commerce applications? What does the future hold for m-commerce in the retail industry and beyond?

Chapter XIX: Perception of Mobile Technology Provision in Health Service

This chapter investigates the user interface perception and resources for mobile technology (MT) support in health care service activities. MT is an emerging and enabling technology in health care, although there is little evidence from the perspective of health representatives on the effect of having a suitable MT system infrastructure for each service. Moreover, the implementation of new technology competes with funding available for health institutions resources and introducing all of them is prohibitive. A case study using a multi-criteria approach was investigated involving three categories of hospitals in Chile, and empirical data was collected comprising diverse health sector representatives. The main contribution is the proposed research decision-making model using the analytic hierarchy process (AHP) to evaluate and compare information and communications systems such as fixed, wireless, or computer-assisted provisions for health-related activities and the identification of the high-priority dimensions in the health care service. The study revealed that mainly private hospitals have access to advanced network and Internet access; hence the technical basis for developing new applications.

Chapter XX: The Implementation of Wi-Fi Technology in Higher Education in the United States

Wi-Fi technology can keep everyone connected all the time and is changing the way people work, play, and communicate. People around the world are using Wi-Fi technology to work, study, play, travel, shop, and bank. Wi-Fi technology is also quickly gaining a foothold on many institutions as a means to achieve mobility and anywhere, anytime access. Wi-Fi technology opens a new dimension of computer networking in higher education. Wi-Fi technology is affecting not only the classroom environment and technology access, but also the actual activities of learning and teaching. This chapter provides the general picture of Wi-Fi technology implementation in the global setting and in higher education in the United States and then examines the following aspects of Wi-Fi technology: Wi-Fi standards, Wi-Fi security, the adoption of Wi-Fi, Wi-Fi to support teaching and learning, challenges of Wi-Fi implementation, and future trends and directions.