Breakthroughs in Application Development Series

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The Breakthroughs in Application Development series is dedicated to providing hard knowledge in the form of detailed practical guides to leading-edge technologies and business models in modern application development. This series will identify, define, and stimulate emerging trends in the industry, covering such rapidly evolving areas as electronic commerce, e-business, intranet development, Web architectures, application integration solutions, and the intersection of business and technology. Each title will focus on a new innovation in the field, presenting new ways of thinking and demonstrating how to put breakthrough technologies into business practice.

1. The Business of Ecommerce: From Corporate Strategy to Technology • Paul May

2. e-Enterprise: Business Models, Architecture, and Components • Faisal Hoque

3. Mobile Commerce: Applications and Technologies of Personal Electronic Business • Paul May

4. Practical WAP: Developing Applications for the Wireless Web • Chris Bennett
To my wife, Helen
ABOUT THE AUTHOR


He formed the independent e-commerce consulting practice Verista (www.verista.com) in October 1998, undertaking strategy and implementation projects with well-known global companies such as BP Amoco and De Beers, and with B2B and B2C e-commerce start-ups around the world. Prior to starting Verista, Paul launched and led the e-commerce practice at ECsoft (Nasdaq: ECSGY; London: ECS), a leading European consultancy and systems integration organization. He and his team were active in a range of business sectors, including finance, retail, and transportation and offered services from business and technology strategy through architecture, design, implementation, and deployment. He regularly presents on object technology and electronic commerce at international conferences.
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At the dawn of the new millennium, some 5 billion people inhabited the earth. In the year 2002, the estimated number of cell phones in use around the world will be 500 million. That is to say, roughly one-tenth of the total world population will soon be using cell phones. Of these devices, perhaps 20 percent (rapidly increasing) are fully equipped for all facets of mobile commerce, including purchase, sale, and trading actions. This gives mobile commerce a significant market.

Once a useful gadget for notorious chatterboxes, the cell phone has significantly reshaped some basic activities of our daily lives. Thanks to an increasingly “always-on” lifestyle, shopping, banking, and making reservations are now commonplace transactions “in your pocket.” Expert observers take it as gospel truth that the majority of working adults will use a mobile device for their major commerce activities by the middle of the decade. For the business world the mobile commerce area beckons with a variety of opportunities to rejoin customers and partners in a decentralized, service-rich environment.

Hardware and software manufacturers are jumping on the bandwagon and heavily investing in the mobile commerce area. New technologies are designed to improve the bandwidth, speed, and performance of mobile devices, establishing them as serious competitors to fixed-line services once the desktop market is saturated. Because both the established leaders and aspiring new faces are keen to create new markets for their products, chances are that mobile commerce will successfully disrupt the current monotonous landscape of a few operating systems, leading to a greater diversity of market share.
Foreword

Thanks to extensive media coverage of business-to-business offers and business-to-consumer launches, entrepreneurs are aware of the unlimited possibilities of mobile devices and the channel these devices represent. By disconnecting their equipment, people are becoming increasingly connected – a paradox business cannot afford to ignore.

Mobile Commerce: Opportunities, Applications, and Technologies of Wireless Business is one of the first books to map this emerging wave of electronic commerce. Although the Web and specialist journals abound with white papers, project reports, technical standards, and observer opinions, a coherent and authoritative guide to the subject has not yet surfaced. Mobile Commerce fills this void. This book is the perfect companion for both technical and nontechnical staff, from software developers to business decision-makers. Paul May, a technologist-turned-business-consultant, expertly explains both sides of the story in clear, intelligent language. Indeed, the author is a well-known authority in the area of electronic commerce, and Mobile Commerce is the logical sequel to his excellent first book, The Business of Ecommerce: From Corporate Strategy to Technology. I’m sure this book will serve you well.

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Introduction

Rubber glvs, throwt, take tel off hook. . . . So began a list found stored in the personal organiser device of a bereaved London man, subsequently convicted in July 2000 of murdering his wife the previous December. The man’s care in disguising the murder as a bungled robbery was destroyed by the small matter of the blood on his clothing, and the telltale list – which ended, “ring mobile just befor yo leave”.¹

Meanwhile, young vacationers partying on the island of Ibiza – the summer centre of the European dance craze – could get free entry to the most popular clubs by responding to text messages received on their cell phones. Almost one quarter of British citizens use text messaging services as a matter of course, and over one third of them have sent a declaration of love via the medium.² Lovers of music, books, and clothes purchase items from their cell phones or wireless organizers. Day traders on the beach execute trades with thumb presses, and night birds reserve theatre tickets by pecking at a hand-held screen.

The overorganised killer, the hedonist with an eye for a bargain, the tongue-tied lover: these are all players in a world in which mobile devices are common pieces of equipment, mediating our relationships and creating new ways for people to interact with their friends, employers, and co-workers and with a newly ubiquitous wireless business environment. The world is in everyone’s pocket.

This book is about how people live their lives and fulfill their needs in a world of continuous, pervasive, personal, commerce-enabled systems connection. The book explores how businesses can respond effectively to this new world and create services that appeal to users, add value to their lives, and generate revenues. We also look at how the mobile channel changes the nature of business itself, transforming processes, capabilities, and expectations throughout tomorrow's successful enterprises. The book deals equally with business and technology concerns, reflecting the symbiotic nature of developments in both areas.

Mobile commerce is a building wave of change driven by consumer adaptation to wireless devices. GartnerGroup predict data-enabled wireless devices will outnumber Internet-connected PCs by 2003, radically disrupting the e-commerce industries' hard-won models of customer behaviour, offer applicability, marketing strategy, and, above all, revenue generation in the fixed Internet setting. We are witnessing an evolutionary step as postindustrial humans climb out from their work stations and begin to populate an electronic savannah.

But readiness for the changes ahead is variable. Andersen Consulting's third annual survey of the e-commerce scene found that most respondents had heard of mobile commerce (91 percent in the United States, 94 percent in Europe). Fifteen percent of European respondents reported they were already involved with mobile commerce, compared to 6 percent in the United States. Similar numbers of respondents in both regions were preparing for mobile commerce (27 percent in the United States, 28 percent in Europe). The most interesting disparity appeared when respondents were asked "Are you open to using [mobile commerce] but without definite plans?" Fifty-eight percent of European respondents agreed with the statement, as did 78 percent of U.S. respondents. On this evidence, European businesses seem to have more

experience in mobile commerce practice, but less commitment to mobile commerce than their counterparts in the United States.

A series of new technology launches is set to improve bandwidth, speed, and performance of mobile devices over the next five years, putting pocket machines in a strongly competitive position versus fixed-line services. The consumer’s pocket will no longer be the home of the wallet alone: it will also be a platform for personal, targeted, high-convenience, commercial services. And in the business world, tumbleweed will blow through cubicle prairies as people rejoin customers and partners in a decentralised, service-rich environment of enhanced relationships and accelerated action. This book is designed to equip readers for the changes in store.

**WHO SHOULD READ THIS BOOK**

The intended audiences for this book are:

- Business leaders and entrepreneurs seeking to understand the emerging mobile commerce arena and how they can take advantage of it.
- Software developers looking to understand the mobile commerce platform and its applications, so that they can develop new services or reposition their careers.
- Mobile technology professionals seeking to enhance their appreciation of the business applications of the technologies with which they work.
- E-commerce directors, e-commerce managers, and CIOs concerned to locate and embrace the leading edge of technology and business development in their field of expertise and to factor new channels, devices, and services into their strategy.
- IT managers looking to pre-empt the certain requirement to respond to mobile commerce challenges set by their colleagues in business development and corporate strategy.
Introduction

- Students of business and computing seeking an overview of mobile commerce concepts and technologies and their relationships to service definition and delivery within commercial organisations.
- Everyone interested in how the development of mobile commerce technology will impact their lives.

HOW THIS BOOK IS ORGANISED

This book has been organised in four main parts.

Chapter 1 focuses on the opportunities mobile commerce brings. We look at why the world is turning mobile and how an identifiable mobile lifestyle is emerging. We consider the economic and technology factors driving the emerging mobile commerce landscape and examine mobile commerce’s impact on the newly established e-commerce industry. We look at ways of generating mobile commerce offers and propose a generic model for designing and evaluating mobile commerce business propositions. The chapter covers the topic of customer relationships and how they operate in the mobile commerce environment. Finally, the chapter looks at how mobile commerce affects systems developers and consumer expectations.

Chapter 2 surveys the leading types of mobile commerce services that currently exist or that are currently being developed to serve consumer and business user roles. We describe a basic functional platform over which mobile commerce services of all kinds can be laid. We then examine in turn the leading mobile commerce service types for consumers: travel, ticketing, banking, stock trading, news and sports, gambling, gaming, and shopping. Turning to services aimed at the business world, we look at mobile commerce services serving independent, collaborative, and management functions.

Chapter 3 collects, organises, and explains the enabling technologies of mobile commerce, from the various types of network technology available through evolving types of mobile devices and service development technology to the emerging standards relevant to the field.
Introduction

Chapter 4 describes a number of live issues affecting the successful development of mobile commerce. These include distinctions between what is technically possible and consumers’ desires and motivations; issues around security, trust and privacy; and concerns relating to health. We also consider the impact of unequal access to the benefits of mobile commerce, the implications of the blurring of the dividing line between work and private life, the re-emergence of geography as a key factor in electronic commerce, and the problems associated with obsolescence in networks, devices, and systems. Lastly, we look at the cost burdens on would-be dominant players in an often high-stakes game.

Appendix A contains a directory of existing mobile commerce services which readers can investigate further. Further sources of information and a glossary of terms complete the book.

A Note on the Text

Most companies referred to in the text can be found on the Web using the formula http://www.company-name.com. Where this is not the case, the URL for the company appears as an endnote.

Many names used in the text are trademarks and are recognised as such.

“He” and “she” are used randomly throughout the book.

I claim any mistakes in the book for my own.

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