

ELECTRONIC COMMERCE

FROM VISION TO FULFILLMENT

SECOND EDITION



ELIAS M. AWAD

Electronic Commerce

From Vision to Fulfillment

S E C O N D E D I T I O N

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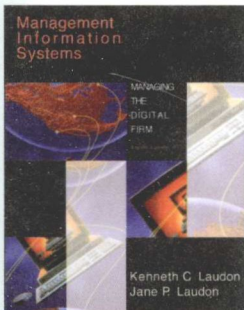
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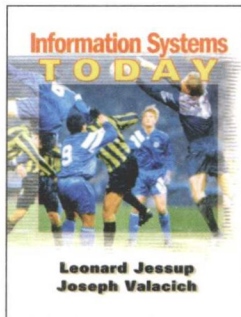
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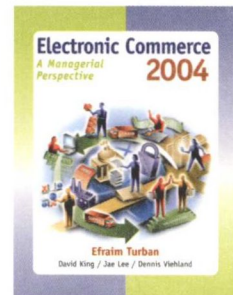
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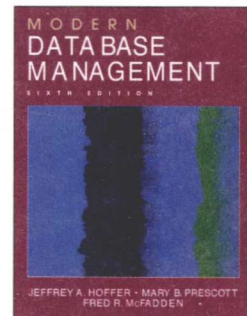


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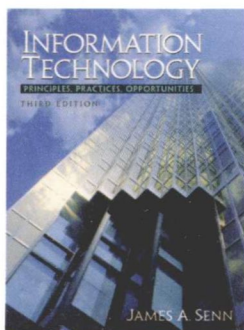
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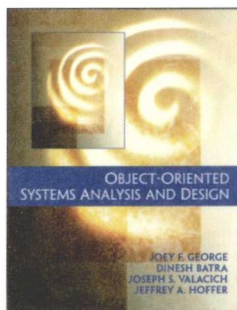


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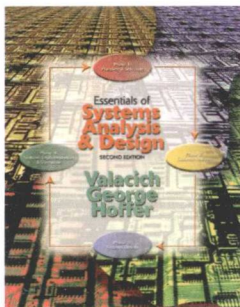


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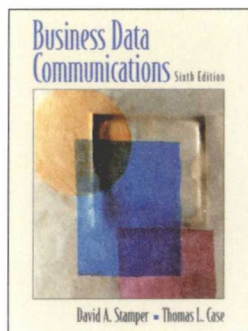
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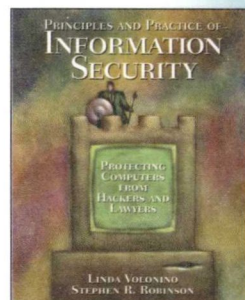
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PREFACE

Welcome to the world of the Internet, the World Wide Web, e-commerce, mobile-commerce, and e-business. The Internet has rapidly become the primary commerce and communications medium for virtually every industry, large or small. Global competition, laws, ethics, security, privacy, and consumer preferences are among the issues being impacted by e-commerce. It is predicted that by the year 2010, one will think about the Internet in the same way one thinks about electricity today. This superhighway continues to improve and expedite e-traffic, e-commerce, and e-business. Today, we enjoy the growing success of business-to-consumer, business-to-business, and business-to-government interfaces. Each interface requires effective Web sites, regular maintenance and upgrades, and bandwidth and ISPs that will accommodate the growing volume of business with minimum delay.

One unique thing about e-commerce is doing business over the Internet around the clock, 365 days a year. An e-business can reach potential customers around the world. As a result, some companies are being bypassed by the Internet revolution as more companies that create goods and services interact directly with the consumer without the help of intermediaries.

The latest explosion in the use of the World Wide Web as a vehicle for e-commerce assumes a direction for continued growth and prosperity. The impact of the Web on business is far-reaching and unique. The process requires redefining business models, changing corporate culture, reinventing business processes, and establishing reliable customer service. The goal of this edition is to inform students of business and practitioners of the concepts, strategies, and techniques used in building e-commerce applications and the changes that have taken place since the first edition came out in 2002.

WHY THIS BOOK?

During the past 18 months, I have been clipping e-commerce reports and articles about events and ongoing technical activities from a number of different sources. I also have been consulting in this field in various industries in the United States and abroad. This edition makes use of practitioner, academic, and field work completed since 2002. The overall conclusion is that e-commerce is a fast-moving target, surpassing even the most optimistic expectations. Forecasters are constantly moving their projections in an upward direction.

Clearly, we are witnessing exciting events. Businesses are fast building Web sites for presence as well as for online business, reaching potential customers and markets in ways that were never before possible. College programs are adding e-commerce as the course to complement required MIS or IT courses at the undergraduate and graduate levels. With today's lack of guidelines in terms of e-commerce content and process, this book sets standards based on the author's four decades of teaching, publishing, and IT consulting experience.

This edition is unique in terms of coverage, approach, lucidity, and overall treatment of the key life cycle phases of e-commerce. It is an exciting opportunity to know how to strategize, design, and evaluate Web sites; how to launch an e-business from scratch; how mobile-commerce is thriving on wireless technology; what technology is needed for

doing e-business on the Web; how to market products; what ethical and legal factors to consider in e-commerce; and how to ensure security and integrity of data traffic through encryption, firewalls, and other electronic devices and software. Managerial and organizational implications are cited at the end of each chapter to note the important relationships between a business and the technology that runs a business on the Internet.

The second edition gives a highly readable treatment of the topic. It approaches building an e-business from a systems analysis and design viewpoint, which includes feasibility analysis, design issues, security considerations, implementation procedures, and organizational implications. A career box is included in various chapters to address the human and occupational areas of e-commerce.

WHO SHOULD READ THIS BOOK?

This edition can be an ideal choice for undergraduate students majoring in MIS, IT, management, finance, marketing, accounting, or e-commerce. Students majoring in computer science or systems engineering also will find the approach, content, and treatment of e-commerce principles and procedures an appropriate addition to their field of specialization. First-year MBA students, especially those with a concentration in information technology, will benefit from the technology and practical orientation presented in the text.

Professionals, general managers, and practitioners can use this text as a reference or as a way to learn e-commerce as a unique way of doing business. Examples of such occupations are Webmasters, ISP managers, CIOs, system designers, project managers and planners, e-commerce sales staff, and e-commerce consultants.

BOOK ORGANIZATION

This text is organized into five parts. Each part represents a critical component of the e-commerce process. Terminology and an index are provided at the end of the text.

Each chapter begins with “In a Nutshell,” which tells the reader what to expect in the chapter. Chapter content includes boxes, easy-to-read figures, and tables designed to help summarize the essence of the material. Definitions of key terms are available in the margin where first cited. Each chapter ends with a comprehensive summary, terms to learn, review (Test Your Understanding) questions, discussion questions, Web exercises, and a list of references for further research.

I. Foundations of Electronic Commerce

Chapter 1 is an updated overview of e-commerce—justification for starting an e-commerce business; the pros and cons of this unique approach to doing business; the roles of strategy and the value chain in e-commerce; and how e-commerce may integrate within Intranet, business-to-business, business-within-business, business-to-government, and mobile-commerce. Managerial implications are cited at the end of the chapter.

Chapter 2 is a review of the history and uses of the Internet, its limitations, how to search online, the role of URLs and HTTPs in helping you navigate on the Internet, and the language of the Internet. A distinction between the Internet and the World Wide Web also is made throughout the text.

Chapter 3 presents comprehensive coverage of Internet architecture. It begins with a description of a network and how information is transferred via standards and protocols from the browser to the Web server and back. The chapter also talks about video and movie standards. A summary of the necessary network hardware, cable types, and network components (hubs, switches, routers, and gateways) is included toward the end of the chapter. A section on the key steps in designing a network and how to manage the corporate network also is included.

II. The Technology of E-Commerce

The focus of Chapter 4 is on the distinctive features of Intranets and Extranets. Specifically, the chapter covers the technical infrastructure, how to plan for an Intranet installation, and the role of e-mail in data communication. Key considerations in Extranets also are covered.

Chapter 5 is a new chapter, addressing Web management tools and portals. Portals and search engines are explained in detail. Other areas of importance include enterprise portal technologies, market potential of portals, content management, intelligent agents, and Web services via portals.

The focus of Chapter 6 is on the Internet service provider and how to host a Web site. Specifically, it covers the actual work of the ISP, how to start one, how to choose one, and how to choose and register one's domain name.

Chapter 7, also new, is a comprehensive treatment of mobile-commerce. The chapter begins with justification for wireless technology and the critical success factors that favor the use of this emerging technology. The chapter also covers how wireless technology is employed, citing Bluetooth, satellite technology, 2G digital cellular technology, palm pilot, and cellular phones. Wireless LAN design and wireless application protocol (WAP) are covered in detail.

III. E-Strategies and Tactics

Chapter 8 addresses Web site design. Specifically, it begins with the justification for a Web site, the life cycle of site building, how to build Web sites, design criteria, and what to look for in hiring a Web designer. This is a critical chapter that sets the tone for the user-merchant interface.

The focus of Chapter 9 is on how to evaluate Web sites and manage Web traffic. It begins with an anatomy of a Web site, uses and limitations of cookies, and the criteria that make a Web site usable. Web site content and traffic management also are discussed. At the end of the chapter, the role of the Web site administrator is explained in detail.

Chapter 10 is about the skills and techniques that are unique to e-marketing. It begins with the pros and cons of online shopping, followed by Internet marketing techniques. The e-cycle of Internet marketing is covered in detail. The latter part of the chapter focuses on how to market presence, how to attract customers to the site, and how to keep track of customers. The principles of customer service also are included in the chapter.

Chapter 11 is a comprehensive coverage of Web-based business-to-business e-commerce. The focus is on B2B models (buyer- and supplier-oriented B2B, electronic auctions, and intermediary-oriented B2B), B2B building blocks, and tools. A separate section that looks beyond B2B and addresses the role of leadership also is included.

Chapter 12 addresses ethical, legal, and international issues related to e-commerce. In the ethical issues section, we cover major threats to ethics, a code of ethics, the privacy factor, and the role of the professional ethicist. The legal issues section discusses liability,

copyrights, trademarks and trade names, warranties, and the taxation issue on the Internet. Web linking, domain name disputes, and encryption laws also are covered.

IV. Security Threats and Payment Systems

Chapter 13 devotes full attention to the concept and serious nature of e-security. The critical components include security in cyberspace, how to design for security, how much risk a company can afford, the privacy factor, how to protect against various types of viruses, and how to recover from security failure.

Following the security chapter is Chapter 14, which addresses the main principles and procedures of encryption. Essentially, it addresses cryptographic algorithm, authentication and trust, digital signatures, major attacks on cryptosystems, digital certificates, key management, Internet security protocols and standards, and government regulations that relate to encryption. The role of biometrics security is a new section in this chapter.

Chapter 15 is about e-payments or how the e-merchant gets the money resulting from the sale of goods and services on the Internet. The chapter explains money properties; Internet-based systems requirements; and electronic payment media such as credit cards, debit cards, smart cards, digital cash, e-cash, and the e-wallet. Electronic funds transfer and Automated Clearinghouse also are covered.

V. Managerial and Customer-Related Issues

Chapter 16 focuses on the procedure and mechanics of launching a new business on the Internet. It begins with strategizing reality (planning), followed by considering the necessary hardware, software, security, and setup phase. The next step is the actual design phase, which focuses on Web site design, the Web storefront, and whether the work should be done in the company's IT department or outsourced to professionals. The last three steps are marketing, fulfillment, and maintenance. Each step is covered in some detail at the end of the chapter.

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E-Commerce is one of Dr. Awad's most recent books. He has been writing since the early 1960s and has authored several best-sellers across the IT discipline about such topics as systems analysis and design, database management, knowledge management, management information systems, human resources management, building knowledge automation systems, and building expert systems. His publications have been translated into German, Spanish, Portuguese, Chinese, Arabic, Russian, and Braille. They have earned international recognition for lucidity, logical flow, and presentation of material based on experience in the field.

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