Book Reviews

In this issue, we are inaugurating our column on Book Reviews. We make our debut with *Frontiers of Electronic Commerce*, by Ravi Kalakota and Andrew B. Whinston. The book is reviewed by Walt Trybula, the Editor-in-Chief of this TRANSACTIONS.

We would like to take this opportunity to let our readers know that we welcome book reviews of recently published materials pertaining to the field of this TRANSACTIONS. At the same time, we appreciate your comments and recommendations as well as your bringing to our attention titles that you might wish to review or materials that you would like us to review for this TRANSACTIONS.

Suggestions from readers and potential book reviewers are invited to address their correspondence to Hermina G. B. Anghelescu, Book Review Editor, via email: hermina@fiat.gslis.utexas.edu or via FAX (512) 471-3971. Or they may submit a completed review or a proposal for a review to:

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Frontiers of Electronic Commerce—Ravi Kalakota and Andrew B. Whinston (Reading, MA: Addison-Wesley, 1996, 850 pp., ISBN 0-201-84 520-2, $49.50.) *Reviewed by W. J. Trybula.*

This is a huge work, 810 pages without counting the index or reference sections. This review is based on the initial publication of the book. The authors have attempted to take the rapidly evolving world of electronic commerce and provide a general explanation of the elements of electronic commerce that is current with existing technology. They have succeeded. The few minor points, like referencing Mosaic as the main Web browser rather than Netscape, are a reflection of the rapidly changing nature of the technology. On the other hand, the authors did incorporate the introduction of Java, which was not of importance when the work was started. Six months from now, there will be more differences, but that does not change the value of the work. No matter what area of business in which the readers are involved, there are some chapters that will relate to their work.

There are 22 chapters in this work that range from an explanation of electronic commerce and the Internet to electronic payment systems and electronic data exchange. The first five chapters discuss the infrastructure required for electronic commerce. The next ten chapters address the business applications and the underlying structure required. The last seven chapters identify the building block technologies required to develop electronic commerce applications. A complete review of all the chapters is beyond the space limitations of this journal.

I will review, in detail, several of the chapters in order to provide a sense of this book. Those chapters are the introductory chapter, Chapter 1; the chapter on EDI, MIME, and Value Added Networks, Chapter 10; and one on Mobile and Wireless Computing Fundamentals, Chapter 20. The list of the chapters is included to demonstrate the scope of topics covered.

CHAPTER 1
WELCOME TO ELECTRONIC COMMERCE

This introductory chapter provides an overview of what electronic commerce (e-commerce) is thought to be. This latter term is important because e-commerce is in its embryonic form and cannot

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be accurately predicted. The division of this chapter starts with an overview of the book and includes references to particular aspects that will be covered in later chapters. The basic content of this chapter is a description of the framework for e-commerce, a projection of the coming convergence of media and e-commerce, a large section on the anatomy of e-commerce, a discussion of consumer applications, and it concludes with organizational applications. The approach is to define the framework and then the need for the framework based on the projected merger of various applications. Building on this, the consumer market is examined with potential applications and possible hindrances. The remainder of this chapter examines the business application aspects of e-commerce.

The anatomy segment of the chapter provides some interesting insights into the delivery mechanisms that exist today and the problems that must be overcome to achieve customer acceptance. While there is an assortment of possible tools that can be applied to the delivery of e-commerce, the appropriate combination of features does not exist in one tool. Television does not deliver the resolution required for text-based information, so some other form must be developed. Computers have the resolution, but require some type of operating system. The potential revenues from controlling this market will probably cause significant competition and hinder standards. The existence of multiple formats causes some problems with consumer acceptance.

Finally, the need for consumer simplification will cause additional design problems. (The difficulty of programming the clock on a VCR is provided as an example of the difficulties faced by the system designers.) This implies that the future delivery system that needs to be defined and developed is still unknown.

The segment on consumer applications has some interesting facts. The growth of television was due to a widespread acceptance of its capability to deliver information in a combination of sight, sound, and motion. Attempts of developing a new market segment, like video-on-demand, have been less than successful. It has been demonstrated that convenience is a strong motivator for consumer acceptance, but a projected doubling of cable subscriber fees would probably inhibit widespread acceptance. In addition, other comparisons of the needs of businesses to have a high monthly return (more than doubling the rate), in order to recoup the system development expenditures, will probably further diminish the probability of widespread acceptance. Consequently, the consumer market will probably be slow in developing.

The last section on the business environment points to numerous applications that have been implemented and are saving businesses money. Just-in-time manufacturing, quick response retailing, and supply chain management are some of the examples given as activities that should spread throughout the business world as the applications become available to all sizes of business. WalMart's reduction of inventory restocking from three weeks to 36 hours is an example of quick response retailing. Based on the savings in inventory, this type of application should drive the business acceptance of e-commerce.

Summarizing, the development of e-commerce should be a benefit to businesses, especially in support of today's paper-based transactions. The reduction in the time to process information should provide businesses with methods of becoming more competitive. These applications may generate a wide array of value-added information business opportunities.

The negative side of this is that the development of the delivery system for the consumer will be much slower than for business. The recovery of investment could be longer, and that might have a negative impact on businesses developing the infrastructure. A positive aspect is that it is anticipated that the development of e-commerce will provide an improved climate for smaller business to participate and benefit in improved productivity. However, there is not a "killer" application, like the spreadsheet, to boost the immediate acceptance of e-commerce.

CHAPTER 10
EDI IMPLEMENTATION

This chapter covers the overview of the requirements for electronic data interchange (EDI) between a company and its trading partner. The understructure must be capable of evaluating authenticity and integrity of messages and processing acknowledgments to the sender. This requires that the standards are accepted and in place. Unfortunately, the ANSI X.12 standard will need to migrate to the international standard, EDIFACT, to provide international compatibility. There is a detailed discussion of the EDI software implementation. Each of the four layers—business application, internal format conversion, EDI translator, and EDI envelope for document messaging—is discussed with rationale for the need of the layer.

The EDI envelope for message transport contains a detailed discussion of the X.400 and X.435 implementations for data exchange. The value added networks are working to implement a multipurpose internet mail extension (MIME) to handle EDI transactions contained in the X.435 mail envelopes. This discussion contains both the advantages and disadvantages of MIME and EDI.

The discussion of VAN's includes pricing structures, start up cost, and variable costs. A detailed presentation of the rationale behind the usage costs gives some insight into possible pricing strategy for the suppliers. Key VAN service providers are identified along with their areas of coverage. The implications of the impact of an Internet EDI system are explained along with the possibility of cobbling this system together.

The remainder of the chapter discusses the implications of the EDI on the Internet from the view of what can be accomplished by the system. The potential of the system is detailed with the developments that would need to happen for the system to work. The summary section of the chapter raises the question of whether the development cost of the required technologies will be worth the savings.

CHAPTER 20
MOBILE AND WIRELESS COMPUTING FUNDAMENTALS

Mobile computing appears to be the coming wave of computing technology. The authors point out that mobile does not necessarily mean wireless, but that wireless will play an important role in mobile computing. Mobile computing focuses on the applications. The wireless aspect of the computing has encouraged the changes in telecommunications.

The core of the technology is developing in four directions according to the authors. Wireless delivery and related switching methods include cellular, radio, paging, satellite, and wireless communications. The availability of the delivery technology gives rise to the increase in device capability. The increase in capability has driven the enhancement of the standards to handle the data requirements, which are more stringent than voice. As the computers and delivery systems are improved, the need for better business applications becomes apparent.

The authors discuss delivery technology in detail by examining the technology requirements of the various choices of delivery and switching systems. Included are radio based systems, cellular communications, packet data networks, satellite networks, and even infrared-based systems. The choice of the technology is partially based on the computing power and equipment that is available. These range from portable computers through cellular modems built into PCMCIA adapters. The discussion of internetworkng standards and communications protocols is an overview of the subject without any significant detail of the issues. In an overview book, this is not a negative, but it would have been appropriate to add references to the pertinent governing bodies that handle the regulations.

The final portion of this chapter addresses applications and communications. This is more a reporting on what is existing without any long range projections for what may be coming. This chapter was purposely chosen because this reviewer thinks it is the weakest chapter, yet it still conveys useful information.

IV. SUMMARY

This tome presents an interesting view of the rapidly developing area of e-commence. It is comprehensive and timely. There are 139 references, which is probably a little on the light side. As mentioned in the synopsis of Chapter 20, references to governing authorities would have been beneficial to anyone seeking more information. For anyone interested in the development of the field of e-commerce, this is one book to strongly consider, since it presents a solid collection of all parts of the picture. The audience for this book is both technical people interested in high level information and potential e-commerce business people interested in an explanation of where the technologies are going. This book is recommended for those planning for adaptation and incorporation of electronic information technologies into their business.

V. CHAPTERS

1) Welcome to Electronic Commerce; 2) The Network Infrastructure for Electronic Commerce; 3) The Internet as a Network Infrastructure; 4) The Business of Internet Commercialization; 5) Network Security and Firewall; 6) Electronic Commerce and the World Wide Web; 7) Consumer-Oriented Electronic Commerce; 8) Electronic Payment Systems; 9) Interorganizational Commerce and EDI; 10) EDI Implementation, MIME, and Value-Added Networks; 11) Intraorganizational Electronic Commerce; 12) The Corporate Digital Library; 13) Advertising and Marketing on the Internet; 14) Consumer Search and Resource Discovery; 15) On-Demand Education and Digital Copyrights; 16) Software Agents; 17) The Internet Protocol Suite; 18) Multimedia and Digital Video; 19) Broadband Telecommunications; 20) Mobile and Wireless Computing Fundamentals; 21) Structured Documents; 22) Active/Compound Document Architecture.