# Preface

Electronic commerce refers to any business activity that takes place using an electronic medium, frequently the Web. Electronic commerce has been widely cited as the fastest growing area in the computer industry. For example, Forester research has predicted that electronic commerce will be a $3.2 trillion industry by 2003. There are many reasons for the rapid adoption of electronic commerce across industry sectors, including increase in customer outreach, reduction of production cycle time and cost, ability to provide customized service and many others. Electronic commerce is being conducted for business transactions between business to business (B2B) as well as business to consumer (B2C). Business applications in electronic commerce include, but are not limited to, digital storefronts, electronic banking, digital financial markets, electronic auctions, supply chain management and electronic commerce services. Many challenges are being formed along with the opportunities created by electronic commerce. For example, large, established companies are facing increasing competition from fast and nimble startups because of low barriers of entry, customer demand is increasing for customizable interfaces and better content management, price competition is forcing companies to operate at lower profit margins, retaining customer loyalty is becoming difficult due to increased competition. Myriad of social and legal issues are also emerging due to the differences between electronic commerce and traditional commerce models. Approaches to solutions for these issues are coming from business innovations, technological solutions, and policy makers. Thus, electronic commerce is a new and rapidly growing area that is of interest to both practitioners and the academic community.

The overall mission of the book is to compile a collection of papers that represent some of the best thinking from researchers and practitioners who specialize in the various facets of electronic markets—namely computer technology, finance and banking, marketing, and logistics.

The book will be of interest to practitioners in the computer industry as well as other business sectors who have an interest in electronic commerce, researchers in business schools, information systems, policy sciences and computer science, and government agencies that are in the process of mplementing electronic commerce applications.

The book is divided into four sections, dealing with issues related to technology development, marketing, finance and business strategies.

The first chapter, written by Alem, Kowalczyk and Lee, reports on solutions for addressing the issues of negotiations with incomplete and imprecise information, dynamic coalition formation and negotiation ontologies. The authors introduce the concept of fuzzy negotiation in electronic commerce and describe a prototype system of intelligent agents to support fully autonomous multi-issue negotiations in the presence of limited common knowledge and imprecise information.

In the second chapter, Rittgen describes a methodology for modeling an enterprise called Multi-perspective Enterprise Modeling (MEMO). The methodology allows for the description of an enterprise on three levels: strategy, organization and information system, and from four angles: process, structure, resources and goals. All partial models for the views are integrated via a common object-oriented core. In this framework the author suggests a modeling language for the IS layer, the Event-driven Method Chain (EMC), a process-oriented language based on Event-driven Process Chains (EPCs), which is adapted to fit both the MEMO framework and the object-oriented paradigm. The methodology described in this chapter is suitable for the development of Web-based applications in an object-oriented programming language.

The third chapter, written by Strauch and Winter, tries to identify the "essence" of a Web-based information system and proposes a comprehensive conceptual model that captures the hierarchical document structure and hypertext semantics, as well as dynamic page generation from databases and various approaches to explicit and implicit navigation. The proposed model comprises several classes of information objects, various types of associations, activities for the design and quality checks. The authors illustrate the model using an existing Web-based information system.

In the fourth chapter, Joshi and Jiang describe a system to cluster search engine results based on a robust relational fuzzy clustering algorithm. They compare the use of the Vector Space-based and N-Gram-based dissimilarity measures to cluster the results from the search engines, such as *MetaCrawler* and *Google*. The chapter starts with a brief background on the clustering algorithm, followed by a description of the system and experimental results.

In Chapter Five, Subramanian and Yen examine Digital Asset Management (DAM) concepts, identify the desirable features and components of DAM, develop a taxonomy of the DAM systems, describe the e-commerce

aspects of digital assets and discuss the various open research issues associated with Digital Asset Management.

In the Sixth Chapter, Altinkemer and Tomak adopt a four-layer description of the Internet economy. They analyze the pricing structures in each of the four layers of the Digital Economy, and analyze the relationship between different pricing strategies and customer service quality concept.

In Chapter Seven, Dasgupta and Chandrashekaran develop a framework for the delivery and tracking of rotating banner advertisements for e-commerce applications. They describe the pricing strategies for online banner advertisements, explain the reason for using rotating banner advertisements, and develop IS models for delivery and measurement of banner ads.

In Chapter Eight, Warkentin and Bajaj propose a new business model enabled by electronic commerce called the on-demand delivery services (ODDS) model. They sub-categorize the ODDS model into three submodels and analyze these models with structured interviews with key senior managers and survey of recent literature.

In Chapter Nine, Finnegan and Kilmartin study electronic payment systems. They describe five main categories of payment systems: credit card payment, electronic check, electronic cash, smart cards and micro-payments. The authors categorize the requirements of stakeholders into high, medium and low priorities, and compare electronic payment against these categorizes.

In Chapter Ten, Holowczak presents an overview of some of the current financial services and products in electronic commerce. He then discusses some important issues related to the application of electronic commerce and their strategic implications for financial services.

In Chapter Eleven, Ahmed shows how techniques used in valuing financial options can be used to evaluate projects or firms involving electronic commerce. He describes the real options theory in corporate finance with examples and illustrates how it can be applied to evaluate e-commerce projects under uncertainty.

Baumoel, Fugmann, Stiffel and Winter, in Chapter Twelve, develop the concept of e-commerce-ability and describe a methodology for measuring it for organizations. Their analysis consists of a four-dimensional framework for comparing the patterns of e-commerce role profiles and analyzing the success of e-commerce activities. The methodology can support management decisions regarding the medium and long-term strategies regarding e-commerce activities.

Burnett and Burn look at models for organizational development using the potential of virtual organization for established firms in Chapter Thirteen. The

authors provide a definition of virtual organizations and models of virtuality, and propose six models of virtual organizations within a dynamic framework of change.

In Chapter Fourteen, Gupta and Sharma discusses the privacy issues in cyber shopping. They identify the privacy concerns, including spamming, surveillance and unauthorized access, personal information protection, intellectual property rights, and possible remedies and future trends.

In closing, I would like to thank all the authors for their excellent contributions to the book. I would also like to extend thanks to all the reviewers, without whom this book could not have, been completed. Many thanks to Michele Rossi, Jan Travers and Natasa Milanovic at Idea Group Publishing for continued support and help at all stages of this publication. Special thanks to Mehdi Khosrowpour for his help and guidance in preparing the book. Last but not the least, I would like to thank my wife Semanti and two sons Anirban and Abhiroop for making everything I do worthwhile.

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