

Preface

The growth in the importance of electronic commerce (eCommerce) has been nothing short of phenomenal. Thousands of new companies have created new marketplaces and new opportunities worldwide. The most visible impact to the average consumer is in the explosion of digital content availability and the plethora of new eetail sites to purchase everything from books to airline tickets to groceries. However, the growth of business-to-business electronic commerce (B2B eCommerce) has been (and will continue to be) a much more significant business activity of far higher value and will impact nearly all organizations in the long run.

B2B eCommerce activities primarily consist of two categories—those that facilitate the procurement of goods and services and those that provide business infrastructure. Within the broad first category are all the activities and processes that are related to the supply chain. Manufacturing companies purchase raw materials, components, and subassemblies from their suppliers upstream in the supply chain. They also sell their products to other companies who add value through other processes—further assembly, distribution, or sale to consumers. The downstream supply chain partners may include other manufacturers, distributors, wholesalers, dealers, franchisees, retailers (and eetailers), and consumers who may “buy direct” from a B2C website such as Dell.com. Manufacturers are not alone—all companies must purchase materials, supplies, and services from various sources. Comprehensively, this network of companies may be termed the *value chain* or *value network*. All final sales to consumers of all goods and services are the culmination of a series or network of value-added processes, which include tangible improvements to physical items and less tangible improvements to the value proposition for the consumer.

This first category of B2B eCommerce includes single acts of procurement by one company from another (“one-off sales”) as well as organized online trading exchanges. The exchanges may be operated by an individual company as an avenue to facilitate interaction with all its suppliers. Exchanges may also be organized by an industry consortium using an industry standard set of data representation schemes and protocols. (These have their roots in the electronic data interchange (EDI) efforts in previous decades.) Or they may be created and operated by third-party intermediaries who typically seek profits based on a transaction fee or a subscription fee for participation in the exchange. (Several chapters described below will elaborate on this taxonomy.)

The second category of B2B eCommerce (business infrastructure) includes a variety of business interactions not directly related to the traditional purchase and sale of goods and services in the supply chain or value chain. The value-added services provided through these digital networks create the digital business infrastructure for New Economy companies. In this highly interconnected environment, firms focus on more narrowly defined core competencies and outsource many processes to firms specializing in providing these real-time digital services. These include adserver networks, digital content syndication and configuration, content delivery maximization, website hosting and maintenance, customer acquisition (through affiliate relationships), real-time data mining, order fulfillment, payment processing, encryption, and many other digital processes. In addition, many companies outsource physical processes related to electronic commerce, such as outbound logistics (delivery) and even order fulfillment. Thousands of new companies have been formed in the last four years to provide these digital services (also known as web services or eServices). Some are generic services available to all, while others are industry-specific. These value chain networks will be addressed in the final section of this book.

This book addresses managerial and research issues related to all aspects of B2B eCommerce. The 13 chapters of this volume cover the environment of B2B eCommerce, supply chain management issues, value chain networks, and related research issues in three sections. Topics include EDI, exchanges, trust, manufacturing connectedness, automated tendering, virtual alliances, and B2X networks. The chapters are lively, with examples from industry. They also provide new scholarly perspectives on these important new markets and the processes that create and support them.

The contributions within this book are written by a collection of respected academic scholars from leading universities around the world and also by consultants with extensive experience creating, advising, and evaluating the new companies in this emerging field. Their work will be helpful to *managers* who seek guidance and insight into the strategic and operational questions arising from participation in this dynamic new environment. The findings contained within these chapters also constitute a valuable resource to *researchers* who seek to extend their understanding of the principles describing these networks and processes. Further, *educators* can use this book as a source of teaching material and classroom discussion to prepare tomorrow's leaders for this emerging New Economy. Finally, *public policy analysts* and *public leaders* need to understand this important new driver of economic growth. All students of business from all perspectives will benefit from the rich analysis contained within the chapters of this book.

The first section of this volume addresses the Business-to-Business Electronic Commerce environment. The first chapter provides a valuable framework for understanding the exchanges that have evolved within these emerging marketplaces. An exchange is a new organizational form residing in digital space that acts as an intermediary to enable firms to conduct and engage in online relationships. This chapter proposes a classification scheme for B2B exchanges that attempts to capture the chaos and complexity of today's B2B relations. It uses multiple implications of this taxonomy for managers to consider, and proposes guidelines for selecting the appropriate exchange mechanism for various business conditions.

The next chapter in the first section presents some valuable managerial considerations related to the establishment of B2B applications. By looking at recent examples, this chapter reveals a number of difficulties and challenges related to technology infrastructure and selection of viable business models. It outlines three specific business models and presents a framework to describe some of the managerial challenges that must be considered. The third chapter furthers this section's look at the B2B environment by providing an overview of critical issues associated with crafting a valuable and sustainable electronic marketplace. After a review of B2B markets, the issues of price presentation and price setting are introduced. The chapter then explores factors associated with participant motivation regarding the key issues of liquidity formation and maintenance, exchange ownership and governance, and the delivery of value-added services.

The final chapter in the first section addresses the issue of "impersonal trust" in establishing successful B2B relationships—the type of trust that is created by structural arrangements, rather than from repeated interaction and familiarity. It cites the institutional structures that B2B exchanges enable through signals and incentives. The antecedents of impersonal trust are presented—accreditation, feedback, monitoring, and legal bonds—and the role of trust in increasing satisfaction, reducing risk, encouraging continuity, and promoting favorable pricing is also discussed. Finally, the impact of these issues on the management of B2B sites and activities is discussed.

The second section of this book covers issues related to Supply Chain Management within B2B eCommerce. The initial chapter in this section provides an account of the history of EDI and Internet-based Supply Chain Management activities in the nation of Singapore. It also presents challenges in implementing B2B eCommerce in procurement and transportation. The goal is to prevent future failures resulting from the pitfalls identified in this chapter. The following

chapter also addresses manufacturing connectedness issues in the context of B2B eCommerce. It argues for the involvement of managers at all levels, especially senior managers, in inter-organizational linkage efforts. Some of the issues include the role of standards, the use of cross-functional sourcing teams, and organizational buy-in. The evolution of highly connected virtual organizations is also addressed in this chapter. The next chapter in Section II introduces lessons in Supply Chain Management from the Chemical Industry. It argues that basic underlying problems in the supply chain must be solved before firms can successfully adopt formalized online procurement processes. Digital exchanges will not have a great impact until managers address internal problems, such as ERP implementation. If a company wishes to move from an “available-to-promise” functionality to one of “capable-to-promise” via the Internet, it must be able to plan production nearly in real time. The final chapter in this section addresses the electronic tendering process for B2B online auctions. The authors describe how the activities of buyers, sellers, and brokers, such as tender invitation, tender return, and negotiating, can be automated with various auction mechanisms to improve the efficiency and effectiveness of B2B exchanges. The chapter proposed a three-layer solution which uses a natural language ontology with dedicated agents to implement an automated tendering support system.

The third and final section of this book contains chapters which develop themes related to value chain networks and eServices, along with some emerging research issues in B2B eCommerce. The first chapter in this section presents an important new research perspective that is designed to improve upon the traditional perspectives from economics and network analysis. It seeks to explain more effectively the unfolding nature of B2B intermediaries and emerging marketplaces. This chapter proposes Structuration Theory as an alternative perspective, which examines the impact of B2B intermediaries not just on economic indicators, but on process outcomes such as mutual trust, coordination, innovation, and utilization of shared knowledge. It also evaluates the alignment of technology and interorganizational structure, and presents examples of the application of this theory. It concludes with some research questions and suggestions for future research approaches.

The second chapter in Section III provides a taxonomy of eCommerce business models and an evaluation of the role of agent technologies in various eCommerce processes. It distinguishes between the characteristics of value networks and dynamic markets. Finally, it presents the evolving standards established by the European Community (EC) designed to foster interoperable business systems. The third chapter discusses powerful new business alliances that offer services and products by utilizing the autonomous infrastructure provided by independent

partners. These “extended corporations” integrate their business processes and systems with integrated value chains that support extended enterprises. It also provides a framework for managers encompassing the use of adaptive business objects and eServices to provide flexible eCommerce solutions. The next chapter in the final section provides perspective on the creation of virtual alliances through Value Chain Management. Using a three-stage investigation, this analysis defines the strategy and structure for an eBusiness enterprise as a value alliance network capable of flexibility and adaptability. Virtual markets are evaluated, and opportunities for electronic intermediation are examined. Supply chains, demand chains, and value chains are related to the evolution of a virtual value chain, which is then used as a basis for the development of effective organizational structures. This approach is then reviewed in the context of the retail market and interactive home shopping systems, and illustrated with an example from the eGrocery business.

The final chapter presents a new way of thinking about outsourcing in the age of digital end-to-end process integration. The evolution of eServices which can be “snapped together” by agile virtual corporations make entirely new business forms possible and have created entirely new marketspaces. Many of these “business-to-exchange” (or B2X) networks are discussed, and some suggestions for the future of B2B eCommerce are presented. The Internet will soon become a standards-based pool of “plug-and-play” processes that allow companies to simply connect to a “data tone” or “applications tone” to build their virtual enterprise that rapidly bring new value to markets.