Preface

Introduction

For years, the efficient data exchange between businesses has been an important issue in improving business transactions. The automation of placing purchase orders, acknowledging orders, sending invoices, initiating the payment process, and preparing documents to closely related supply chain partners has significantly improved business performance. Electronic document interchange (EDI) seemed to carry the mission in the 1980s. However, without surprise, the proprietarily formatted message of EDI shared via value-added network does not react to the challenge appropriately. On the other hand, keen business competition demands a new technology to replace the proprietary EDI system. Extensible Markup Language (XML) gaining popularity in the late 1990s seemed to answer to the call. The XML language uses text-based format and allows users to define their own message format. The message can be sent through the Internet and be manipulated by Java, where both Internet and Java are ready for global data exchange in a perfect timing.

At the same time, the technology for intra-business integration has matured as well. The enterprise resource planning (ERP) system integrating the business modules, such as inventory management, accounting information system, customer service, human resource, engineering, and manufacturing resource planning, provides the strengths of amalgamated financial data, standardized manufacturing process, and complete human resource information in real time. The ERP allows a company to manage resources while doing business with suppliers and customers. In the interaction between companies, the online catalogue becomes an interface. Traditionally, an online catalogue is a one-way ordering system for the customer to purchase products from suppliers. Today, since the

online catalogue has integrated with the back-end system in some companies, a customer can have more detailed information, trace the status of work-in-process orders, and, to an end, participate in the product design.

Nowadays, being the best in producing quality products is not good enough. The real e-business model is to streamline the supply chain with partners using an integrated internal ERP system. New technologies can further improve the supply chain. For example, GM uses radio frequency identification (RFID) to trace the shop-floor process and update the database via Wi-Fi wireless connection to manage their supply chain operations, and Wal-Mart uses to RFID to trace inventory.

When most companies enhance the competition from company versus company to supply chain versus supply chain, what is the next step a company should take? This book is written to echo the calls for advancing electronic business. The answer to companies is collaborative commerce. Collaborative commerce, as it will be defined in Chapter I, is (1) a collaborative technology, similar to workflow collaboration; (2) a customer-driven technology, similar to a pull-type supply chain; (3) a functionally integrated technology, similar to concurrent engineering; and (4) a business-driven technology, similar to enterprise resource planning, for cross-organizational integration. Therefore, in collaborative commerce, there are several activites involved: collaborative design, collaborative engineering, collaborative decision making, workflow collaboration, knowledge networking, and others. In fact, there are currently many efforts to provide the infrastructure for collaborative commerce. The most significant one is RosettaNet, which is a global consortium found in 1998 by more than 400 electronic components, IT, and semiconductor manufacturing companies to define and standardize e-business transaction processes among trading partners.

Book Organization

This book is organized in the following way:

Chapter I defines collaborative commerce and explains how companies use information technology to achieve a closer integration and a better management of business relationships among business partners.

Chapter II proposes a meta-taxonomy to classify the existing taxonomies of collaborative systems found in the literature using three dimensions in e-collaboration: communication, cooperation, and coordination.

Chapter III discusses the roles of electronic business solutions (EBSs) in supporting collaborative product development (CPD). Two fundamental questions are examined: when and where EBSs should be applied for what CPD decision

activities and how EBSs should be designed and developed to maximize their usefulness and usability in supporting CPD decision activities.

Chapter IV presents the evolution of concurrent engineering to extended enterprise collaborative engineering and introduces basic mainstays. The expansion of enterprise architectures using extended and virtual models is possible due to the advances of communication tools and the capabilities of computer-aided tools that heavily depend on the digital product representation.

Chapter V introduces the collaborative decision-making (CDM) framework as a means of systematically developing collaborative systems in an electronic business environment. It argues that the CDM framework provides a holistic view of the components that play critical roles for collaboration, which include group facilitation and coordination, knowledge repositories, dialectic decision support, and discussion strategy support.

Chapter VI focuses on a summary of the contemporary development of workflow management systems in collaborative commerce. The technical facet is demonstrated from perspectives of architectures, standards, and system analysis.

Chapter VII aims to describe interorganizational "knowledge networks" and demonstrate how they have ushered in a new paradigm of collaborative business by forging links between internal and external knowledge and information resources.

Chapter VIII introduces networked collaborative e-learning as a specific model of e-learning. It argues that any e-learning event or course is underpinned by a set of educational values which determine the design of that event, and networked collaborative e-learning is underpinned by a belief that e-learning communities and identity formation are central features of this form of learning.

Chapter IX examines various types of supply chain management information systems. It argues that the approach best suited for an organization depends in part on the degree of integration between the partners, the complexity of the business processes, and the number of partners involved.

Chapter X introduces the applications of collaborative transportation and consolidation management in global third-party logistics. These practices are driven by the quest to improve service and reduce cost simultaneously under an e-commerce model of global supply chain management.

Finally, *Chapter XI* deals with ethical dimensions in the environment of collaborative commerce. An ethical failure model is developed based upon failure concepts borrowed from the quality profession.