



Chapter VII

Supply-Chain Challenges for B2B eCommerce with Examples from the Chemical Industry

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INTRODUCTION

In this chapter, I examine supply-chain-related challenges that eMarketplaces and existing companies face as business-to-business eCommerce increases. Although the Internet is increasingly attractive for B2B commerce and for supply-chain management, eCommerce is more likely to reveal the inefficiencies in supply chain and to increase customer expectations relative to offline trade. Therefore, managers must understand the supply-chain management challenges associated with B2B eCommerce, especially in light of the fulfillment failures already experienced in business-to-consumer eCommerce.

Although many businesses have developed new business models, the impact of the Internet on supply-chain management has been evolutionary rather than revolutionary. The Internet has made possible new ways to buy and sell products, for instance, auctions and reverse auctions in electronic marketplaces. And it has facilitated the creation of new markets for many manufacturers and decreased procurement costs for others. For physical goods that cannot be translated into bytes and sent over the Internet, however, the manufacturer's supply chain itself has not fundamentally changed, and

therefore, supply-chain management is not fundamentally affected. The supply chains of fertilizer or television-set manufacturers will continue to have brick-and-mortar components for material flows even as they increasingly use the Internet for information flows. Parts and products must be bought, manufactured, moved, and delivered, just as they were before commercial use of the Internet. For supply-chain management, information exchange across companies predates the Internet. Large companies and their major suppliers, customers, and carriers send order-related information by electronic data interchange (EDI) links, faxes, phones, and mail. Information transmission via the Internet, though cheaper, ubiquitous, and close to real time, fills existing business needs and merely extends the existing solutions.

To understand supply-chain management in the online B2B world, we should start with the supply chain predating B2B eCommerce and understand its operation and challenges as they are carried into the new context. Supply-chain management can be viewed as comprising (1) *execution*, i.e., synchronizing the cash, inventory, and order status associated with any transaction; (2) *planning*, i.e., creating a plan covering what products to produce where, against a forecast and how to distribute for the next, say, six months; and (3) *monitoring*, i.e., tracking orders and shipments to confirm delivery against orders. We can categorize supply-chain challenges in the same manner:

- transacting and executing orders;
- planning, both within and across companies; and
- monitoring and tracking orders and shipments.

To illustrate these challenges, I give examples from the \$1.6 trillion chemical industry, which already has a significant investment in B2B eCommerce.

LITERATURE SURVEY

The growing importance of supply-chain management in B2B eCommerce is readily apparent in such trade journals as *Business 2.0* and *e-Company*, and from analysts' reports, including those from AMR Research and the Gartner Group. For instance, Christie (2000) reports on recent projections by Jupiter Research asserting that Internet marketplaces "will drive a significant shift in supply-chain management for several core industries," such as aerospace and defense, chemicals, computer and telecommunications equipment, electronics, and motor vehicles and parts, with more than half of these industries' sales being online by 2004. Mougayar (2000) highlights the growing importance of supply-chain management, provides a historical context, and outlines the

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