Chapter IX

Costs and Benefits in Supply Chain Collaboration

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Abstract

Recent advances in supply chain management information systems (SCM IS) have enabled firms to more fully collaborate with their supply chain partners — driving out costs while increasing responsiveness to market demands. This chapter examines various types of SCM IS — from traditional EDI systems to more recent Web-services-based e-business applications. 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. A model is presented for analyzing the costs and benefits that can be expected from each type of SCM IS. The model enables researchers and practitioners to better understand the differences among SCM IS and thus can help reduce the risks of implementing these valuable yet complex information systems.

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Introduction

For several decades, interorganizational information systems (IOS) have enabled the buyers and suppliers in a supply chain to exchange information electronically. By reducing the errors, costs, and time associated with the manual reentry of data, Electronic Data Interchange (EDI) technologies enable firms to reduce their transaction processing costs, cycle times, and inventory levels (Mukhopadhyay, Kekre, & Kalathur, 1995; O’Leary, 2000). However, the adoption of EDI systems limit trading partner flexibility, resulting in benefits often accruing to one partner at the expense of the other (H. G. Lee, Clark, & Tam, 1999). Furthermore, the usage of IOS has traditionally been limited to exchanging transactions rather than enabling the further benefits of supporting collaboration through the coordination of processes and information (Konsynski, 1996).

The recent innovations in more flexible Internet-based supply chain management information systems (SCM IS) promise to improve both the efficiency and agility of each of the partners in a supply chain (Green, 2001; Reddy, 2001a). Whether a firm implements an electronic marketplace, Internet EDI, extended enterprise resource planning (EERP) system, or other SCM IS, choosing the right approach is a risky undertaking given the number of factors that influence the total costs and benefits.

This chapter analyzes different types of SCM IS and presents a framework for understanding the expected costs and benefits of each type of IS. It begins with an overview of supply chain collaboration and its importance to many firms. It then describes the various SCM IS alternatives for supporting supply chain collaboration and introduces a framework for determining their expected costs and benefits. It concludes with an explanation of how firms can use the cost-benefit model to select and implement SCM IS that best fit their organization.

Supply Chain Collaboration

Collaboration is an approach to supply chain management (SCM) that moves beyond mere transactional exchanges to focus on joint planning, resource coordination, and process integration between buyers, suppliers, and other partners in a supply chain (Horvath, 2001; Kumar, 2001). Recent advances in electronic business practices are enabling firms to use collaborative commerce to drive out costs and increase return on assets in their supply chain, as well as increase their responsiveness to changing market demands (McLaren, Head, & Yuan, 2002). However, supply chain collaboration itself is not a new concept and
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