Chapter 2.11
Procedure for Modeling and Improving E–SCM Processes

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ABSTRACT

Today's managers are turning to the functions of the supply chain to improve margins and gain competitive advantage. The explosion of the Internet and other e-business technologies has made real-time, online communication throughout the entire supply chain a reality. Electronic supply chain management (e-SCM) is a reference to the supply chain that is structured via electronic technology-enabled relationships. This chapter concentrates on the development of a procedure referred to as eSCM-I for e-SCM process improvement. The procedure focuses on process mapping and relies on principles of coordination theory. It is based on SCOR to standardize the process and take advantage of this technique of benchmarking/best practices potential. The procedure employs IDEF0 technique for mapping the processes.

INTRODUCTION

Supply chain management (SCM) is a network of entities that encompasses every effort involved in producing and delivering a final product, from the supplier's supplier to the customer's customer (Supply Chain Council, 1997, in Lummus & Vokurka, 1999). A key principle is that all strategies, decisions, and measurements are made considering their effect on the entire supply chain, not just individual functions or organizations (Towill, 1996).

The association of supply chain management with e-business offers new challenges for marketing. The explosion of the Internet and other telecommunication technology has made real-time, online communication throughout the entire supply chain a reality. The Internet allows

companies to interact with customers, and collect enormous volumes of data and manipulate it in many different ways to bring out otherwise unforeseen areas of knowledge (Abbott, 2001). Poirier and Bauer (2000) refer to the term 'electronic supply chain management' as a reference for the "natural combining of supply chain and e-commerce." Electronic supply chain management (e-SCM) is a concept introduced to the need of adaptability and flexibility in a highly dynamic e-business environment which focuses on network integration. E-SCM refers to the supply chain that is built via electronic linkages and structurally based on technology-enabled relationships (Williams, Esper, & Ozment, 2002).

Poirier and Bauer (2000) highlight three constituents in the preparation and execution of e-SCM:

1. **E-network:** Business networks should satisfy customer demands through a seamless (fully connected end-to-end) supply chain to serve the end consumer (see also Towill, 1997).
2. **Responses:** Customer responses form the central theme of the supply chain strategy. The market value of the supply chain can be dramatically enhanced by jointly creating profitable revenue growth through integrated inter-enterprise solutions and responses.
3. **Technology:** Each of the above constituents can achieve the purposes and goal of the supply chain by being supported with leading-edge technology, particularly e-commerce.

The three constituents—e-network, customer responses, and technology—could be seen as the "input" into e-SCM working together to achieve the ultimate aim (output) of the supply chain—that is, customer satisfaction. In synergy with the model developed by Goldman, Nagel, and Preiss (1995) and Meade and Sarkis (1999) for agile

manufacturing, Figure 1 models the dimensions of an e-SCM environment within the context of the IDEF0 process mapping modeling technique.

Murillo (2001) and Helms, Ettkin, and Chapman (2000) indicate that the problem in pursuing supply chain construction efforts is not a lack of ideas about what to do, but instead about how to coordinate the efforts throughout the supply network. It was drawn by Peppard (1995) that a business process approach can act as a catalyst for bringing together the various things that have been occurring in the organization and management areas over the past decade. He further suggests that a process focus can provide an integrative mechanism. Process management involves planning and administering the activities necessary to achieve a high level of performance in a process, and identifying opportunities for improving quality and operational performance. Ultimately it includes translating customer requirements into product and service design requirements (Evans & Lindsay, 2002).

Goldman et al. (1995) recognize the significance of employees as a company asset and emphasize the importance of leveraging the impact of people and information for an agile enterprise. Evans and Lindsay (2002) show direct correlation between employees' (people) satisfaction and customer satisfaction, and argue that 'people' are the only organization asset that "competitors cannot copy; and the only one that can synergize, that is, produce output whose value is greater than the sum of its parts." Evans and Lindsay (2002) also emphasize that the two key components of service system quality are employees and information technology. Meade and Sarkis (1999) state that people and information are the most valued resources. It follows that the mechanism that converts the input of the e-SCM environment to its output (i.e., customer satisfaction) includes three constituents: process, people, and information sharing. In an analogy with agile enterprise dimensions (Goldman et al., 1995; Meade &

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