

Chapter 2.26

A Methodology for Developing Integrated Supply Chain Management System

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ABSTRACT

Integrated Supply Chain Management (ISCM) involves the linking of suppliers and customers with the internal business processes of an organization. ISCM solutions allow organizations to automate workflows concerning the execution and analysis of planning, sourcing, making, delivering, returns handling, and maintenance, to name but a few. Many of today's ISCM systems use primarily Web technology as the supporting infrastructure. Undoubtedly, the electronic (Internet-based) ISCM systems deliver the enterprises with a competitive advantage by opening up opportunities to streamline processes, reduce costs, increase customer patronage, and enable thorough planning abilities. However, there has been significant customer backlash concerning the inability of software vendors to deliver easy integration and promised functionality. Although

various researchers have suggested strategies to overcome some of the failures in operating ISCM systems, there appears to be a lacunae in terms of architectural investigations in the analysis stage. The methodology proposed in this chapter seeks to resolve these gaps and provides a fundamental framework for analyzing ISCM systems.

INTRODUCTION

This is the age of communication based on Internet technologies. As a result, enterprises are able to conduct inter- and intra-organizational activities efficiently and effectively. This efficiency of communication has percolated in all arenas of organizational activities, including customer relationships, resource planning, and, in the context of this discussion, supply chains. Given the cost of logistics and their importance in order fulfill-

ment process, organizations may want to capitalize on this opportunity to communicate in order to reengineer their supply chain operations that would sustain them in the globally competitive and challenging world of electronic business. With this invigorated growth of e-business, software vendors and consultants have been promising businesses the utopian Internet-based supply chain systems that would provide them with the capability to respond in real-time to changing product demand and supply and offer an easy integration functionality with backend information systems (PeopleSoft, 2002; Turner, 1993).

Although a number of Internet-based supply chain systems (or integrated supply chain management systems—ISCM systems) are available for adoption, enterprises do not guarantee to implement the systems in conjunction with their existing information systems. Furthermore, the ISCM systems may not fulfill the connection and implementation requirements among participants in the supply chain.

After the e-commerce hype had dissipated, surveys undertaken in 2001 tend to paint a different picture as to the success of these implementations. Smith (2002) concludes that at least 15% of supply chain system implementations during 2001 and 2002 were abandoned in the US alone. Although several reasons can be identified as the cause of implementation failure, the main problem rests with the fundamental analysis of ISCM operations and requirements.

The purpose of this chapter is to debunk some myths proposed by vendors with regard to the implementation of Integrated Supply Chain Environments (ISCE) and propose an analysis methodology for Integrated Supply Chain Management systems.

First, the chapter will examine some of the available literature regarding ISCE. The fundamentals of ISCE—technologies and processes—will be investigated in some detail. Vendors were quick to promote the benefits of ISCE yet were not so forthcoming as to possible barriers and

other issues to watch for. Both of these also will be discussed in this chapter.

Second, an analysis methodology is proposed, which intends to address some of the issues identified previously and construct a theoretical model for enterprises to adopt in the analysis phase of developing ISCM systems. This chapter concludes with a future research direction in investigating technological issues of ISCM systems operation.

INTEGRATED SUPPLY CHAIN MANAGEMENT OVERVIEW

ISCM involves the linking of suppliers and customers with the internal supply processes of an organization. Internal processes would include both vertically integrated functional areas, such as materials, sales and marketing, manufacturing, inventory and warehousing, distribution, and, perhaps, other independent companies involved in the supply chain (i.e., channel integration). Customers at one end of the process can potentially be a supplier downstream in the next process, ultimately supplying to the end user (Handfield et al., 1999; Turner, 1993).

ISCM Solutions

While, in many cases, ISCM systems are still in their infancy, the concept of establishing information flows between points in the supply chain has been around since the 1980s. Through Electronic Data Interchange (EDI), customers and suppliers have communicated supply data through direct dial-up interfaces and other mediums (Zieger, 2001). However, the ability for the Internet to create a common communication infrastructure has made integration much more cost-effective. ISCM has promised to deliver the right product to the right place at the right time and at the right price (Comptroller, 2002).

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