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Chapter VIII

Development Attributes of Quality for E-Supply Chain System

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ABSTRACT

E-supply chain system is an enabler/system that enriches the information service quality in supply chains. This chapter uses factor analysis to determine four extranet success factors: system quality, information quality, service quality, and work performance quality. A critical analysis of areas using discriminant analyses that require improvement is also conducted.

INTRODUCTION

Traditionally, the focus of a supply chain was on connection, transaction, and delivery within an organization. In today's faster-paced markets, the focus has shifted to rapidly, correctly, and profitably meeting the market demands on an organization. With materials flowing downstream from suppliers, manufacturers, warehouses, and stores to customers, and information flowing in both directions, a supply chain must maintain and sustain technology-based and quality-driven capabilities to minimize system-wide costs, reduce lead time and transit time, and improve customer service levels. To this end, the supply chain must be managed effectively. Thus, the supply chain literature reveals that the focus has now shifted from the traditional company-centered setting to a complete supply chain system with the implementation of e-commerce; that is, e-supply chain system (Kuei et al., 2002).

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The implementation of e-supply chain system (e-SCS) helps organizations to effectively manage their global competitive strategy, which includes strategic source materials and components worldwide, select global locations for key depots and distribution centers, and transfer exiting logistics technologies to new markets (Coyle et al., 2003). The e-SCS practice has played a strategic role in the fast-changing business environment in the Asia Pacific region. In Hong Kong, the economical structure has merged gradually with mainland China; the local government has propelled the idea of setting a logistics center, which includes the development of a supercomputer platform that aids fast information exchange among trading partners. An e-SCS is an effective information system that enables supply chain partners to keep track of their work performance and the customer services that they offer to their clients electronically.

The modeling and study of the success elements of supply chain practices are well documented in the literature. For example, Narasimhan and Kim (2001) proposed a structured model for developing a strategy that could integrate all relevant organizational components among supply chain firms. Kuei and Madu (2001) identified a set of success factors in exercising quality management in a supply chain. Gallupe and Tan (1999) stated that IT adoption in a supply chain is very much dependent on national culture. Studies have reported different practices in Korea (Kim, 1996), Hong Kong (Wong et al., 1999), the United States (Tan, 2002), and other Asia-Pacific countries (McMullan, 1996). However, there have been relatively few studies on the performance of information services such as e-SCS. Further, information services that are designed for e-SCS are very different from the information system that is internally adopted by each supply chain partner. Hence, the prime objective of this chapter is to identify a set of success factors encompassing key e-SCS system features and practices in a supply chain.

In brief, this chapter identifies a set of e-SCS features and practices from the relevant literature. Exploratory factor analysis is used to extract the e-SCS success factors from these system features and practices. In addition, areas for improvement in e-SCS features and practices are identified by using the discriminant analysis. The service industry is the focus here because most firms are now using the services of outsourcing logistic firms in their non-core businesses so that they can concentrate on their core business and re-engineering (Voon & Ho, 2001). The following sections will review e-SCS features and practices, discuss the study design and measures, and present the findings before concluding the chapter.

E-SUPPLY CHAIN SYSTEM FEATURES AND PRACTICES

Since existing literature on e-SCS features and practices are relatively sparse, we borrow a set of relevant system features and practices from the intranet literature. Twenty-four system features and practices were initially identified in the intranet literature, but these were reduced to 18 after the verification of applicability in personal interviews with five local extranet providers and five supply chain practitioners. Table 1 outlines the 18 remaining system features and practices with supporting references.

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