An Exploratory Study of the Success Factors for Extranet Adoption in E-Supply Chain

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ABSTRACT

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

Keywords: e-supply chain; information systems; extranet system; critical success factors

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 (Kuei et al., 2002). The implementation of e-supply
chain helps organizations to effectively manage their global competitive strategy, which includes strategically source materials and components worldwide, select global locations for key depots and distribution centers, and transfer existing logistics technologies to new markets (Coyle et al., 2003). The e-supply chain practice has played a strategic role in the fast changing business environment in the Asia Pacific region. In Hong Kong, the economical structure has gradually merged with the mainland China that 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 extranet is an e-supply chain 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 USA (Tan, 2002), and other Asia-Pacific countries (McMullan, 1996). However, there have been relatively few studies on the performance of e-supply chain information services such as extranet. Further, information services that are designed for an extranet are very much different from the information system that is internally adopted by each supply chain partner. Hence, the prime objective of this paper is to identify a set of success factors encompassing key extranet system features and practices in a supply chain.

In brief, this paper identifies a set of extranet system features and practices from the relevant literature. Exploratory factor analysis is used to extract the extranet success factors from these system features and practices. In addition, areas for improvement in extranet system features and practices are identified. 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 and Ho, 2001). The following sections will review extranet system features and practices, discuss the study design and measures, and present the findings before concluding the paper.

EXTRANET SYSTEM FEATURES AND PRACTICES

Since existing literature on extranet system 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 eighteen after the verification of applicability in personal interviews with five local extranet providers and five supply chain practitioners. Table 1 outlines the eighteen remaining system features and practices with supporting references.
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