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# **Empirical Evaluation of an Integrated Supply Chain Model for Small and Medium Sized Firms**

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## **ABSTRACT**

*With increased global competitive pressures, companies operating in these competitive environments are not only looking to their distribution division to save money, but also to generate competitive advantages. One technique is the integrated supply chain. However, this process has not met with success for all companies, leading some managers to consider the appropriateness of an integrated supply chain. This dearth of success could be attributed to the lack of scholarship to guide managers in their efforts to formulate and then implement their integrated supply chain strategies. In an effort to fill this gap, our paper draws on resource dependency theory and the realities of ever-increasing information technology sophistication as enablers of successful supply chain integration, resulting in the creation of our model to guide managers throughout this process. Through a Web-based survey, 329 responses were collected and analyzed through a structural equation modeling technique using LISREL to confirm the relationships in the model.*

**Keywords:** *information technology sophistication; resource dependency theory; supply chain management.*

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## **INTRODUCTION**

Five days before the release of the fourth Harry Potter book, *Harry Potter and the Goblet of Fire*, Amazon.com found its supply chain strained. Over 275,000 copies of the book had to be delivered on time within the next few weeks (King, 2000). By working closely with members in their supply chain such as FedEx, Amazon was able to handle the orders and avert a potentially damaging situation. While not every company is as de-

pendent upon its partners as Amazon is, global pressures are forcing more and more companies to reassess the importance of working with others. Indeed much of the blame for K-mart's bankruptcy and subsequent restructuring lay in its inability to compete with the likes of Target and Wal-Mart (Sliwa, 2002). Both Target and Wal-Mart had been able to streamline their supply chains, whereas K-Mart had struggled to keep up. Both of these incidents show that successfully managing the supply chain has become not just a means of distribution, but

a means of competitive advantage as well.

The rapid advancement of information technologies, such as the explosive growth of enterprise resource planning (ERP) and the continuing development of e-commerce applications and the Internet, has forced many companies to reevaluate their roles and positions within their competitive environments. This new business paradigm is forcing business processes to be reconsidered and redesigned (Hackney, Burn, & Dhillon, 2000). As such, many companies like K-mart are modifying their logistics functions by forging strategic alliances with suppliers and buyers to more thoroughly integrate their supply chains.

An integrated supply chain is simply "taking those functions that originate at point of origin and ultimately end up at a point of consumption" and integrating them together through alliances (Bowman, 1997, p. 30). As stated by Hertz (2001), for example, an integrated supply chain involves greater coordination and collaboration among all members of a company's supply chain. It is sharing information across organizational boundaries within a network of alliances, including suppliers and end-users. The potential benefits of employing an integrated supply system include overall cost and time reduction in the design through product stages (Davenport & Short, 1990). However, within both academic and practitioner journals, there has been inconclusive evidence that an integrated supply chain is an essential strategic tool for companies to succeed (Bowman, 1997). While most (but not all) voices state that an integrated supply chain is a benefit, several voices have argued that an integrated supply chain is not necessarily beneficial in all situations (Cox, 2001; Cox & Thompson, 1998). Indeed many attempts at integrating the supply chain have not been successful (Handfield, Krause, Scanwell, & Monezka,

2000). To date there has been limited discussion as to the conditions under which a company should integrate its supply chain. Our primary purpose of this paper is to conceptualize and test a model drawing from resource dependency theory and the realities of information technologies as enablers of a successfully integrated supply chain. By doing so, it is our hope to aid managers of such firms facing the decision of joining or forming an integrated supply chain.

## LITERATURE REVIEW

Resource dependency is applicable to an integrated supply chain perspective, as an integrated supply chain is based upon inter-enterprise relations or alliances and the building of supply networks (Trienkekens & Beulens, 2001). Likewise, resource dependency posits a firm is a collection of strategic coalitions created to secure critical resources for the firms including suppliers and buyers (Olavarrieta & Ellinger, 1997). Resource dependency provides an additional perspective to other supply chain management theories. We argue that resource dependency theory complements the extant integrated supply chain management literature (Trienkekens & Beulens, 2001).

Resource dependency theory suggests that a company will attempt to generate alliances with other organizations in order to maintain a consistent supply of critical resources (Pels, Coviello, & Brodie, 2000; Pfeffer & Salancik, 1978; Scott, 1987). In essence, the initiating company will create an alliance with another company that possesses a needed resource, and in doing so, will attempt to create a mutual interdependence between the two alliance members through buyer-seller exchanges and through access to other members of

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