Chapter 6.9
Determinants of Manufacturing Firms' Intent to Use Web–Based Systems to Share Inventory Information with their Key Suppliers

Pierre Hadaya
Université du Québec à Montréal, Quebec

Robert Pellerin
Ecole Polytechnique de Montreal, Canada

ABSTRACT

Based on the literature on the diffusion of innovations and on information systems, and building on emerging concepts in electronic collaboration (e-collaboration), this article measures the influence of various determinants on manufacturing firms' intent to use Web-based inter-organizational information systems (IOISs) to share inventory information with their key suppliers. This theoretical model is tested on data collected from 498 senior managers of Canadian manufacturing firms. Our findings indicate that a manufacturing firm's organizational readiness, its past experience with e-commerce and its business relationships all affect its future use of Web-based IOISs to share inventory information with its key suppliers. The results of Tobit regressions also provide supporting evidence that firm size moderates the impact of the present use of e-commerce with suppliers on manufacturing firms' intent to use Web-based IOISs to share inventory information with key suppliers.

INTRODUCTION

Collaboration is a very broad and all-encompassing term. In recent years, the concept has been studied in multiple disciplines, including

sociology (Powell, White, Koput, & Owen-Smith, 2005), psychology (Stern & Hicks, 2000; Konczak, 2001), marketing (Perks, 2000; Jap, 2001; Gadde, Huemer, & Håkansson, 2003), management (Cross, Borgatti, & Parker, 2002; Sawhney, 2002; Singh & Mitchell, 2005) and information systems (Becerra-Fernandez, Del Alto, & Stewart, 2005; Markus, 2005; Pinsonneault & Caya, 2005). However, to date, most research on this subject has focused on supply chain management (SCM) collaboration (Barratt, 2004; Tuominen, 2004; Holweg, Disney, Holmström, & Smaros, 2005; Min et al., 2005; Simatupang & Sridharan, 2005; Cassivi, 2006).

Given that business-to-business interactions are often facilitated by Web-based tools and other interorganizational information systems (IOISs), the term "electronic collaboration" (e-collaboration) is generally used to describe relationships that go beyond simple buy-and-sell transactions (Johnson & Whang, 2002). E-collaboration is operationally defined as collaboration using electronic technologies to accomplish a common task (Kock, 2005) whereas the term "IOIS" refers to information and communications technology that transcends legal enterprise boundaries (Cash & Konsynski, 1985; Applegate, McFarlan & McKenney, 1996; Kumar & van Dissel, 1996). Electronic data interchange (EDI) is probably the most commonly used technology allowing the exchange of information between business partners. However, in today's digital economy, more and more firms are turning to Web-based approaches to support their interorganizational activities. As highlighted by Elgarah et al. (2005, p. 8), "this migration reflects a movement away from a dyadic approach in data exchange, to more flexible cost-effective approaches that capitalize on many-to-many relationships." Today, SCM systems, e-collaboration tools and other Web-based IOISs play a crucial role in the evolution of supply chain relationships as they are able to support a number of collaboration processes ranging from direct procurement, replenishment, and delivery

and design, to more strategic processes such as capacity planning (Cassivi, 2006).

Despite managers' and researchers' awareness of the value of e-collaboration (Min et al., 2005; Munkvold & Zigurs, 2005), empirical studies measuring the extent of e-collaboration within supply chain networks show mixed results. While studies focusing on organized networks led by major system integrators (original equipment manufacturers, or OEMs) show significant levels of integration and collaboration (Cassivi, Lefebvre, Lefebvre, & Léger, 2004; Cassivi, 2006), other studies have found that only a few companies are engaged at the level of integration that the concept of collaboration suggests (Fawcett & Magnan, 2004).

It therefore seems important to identify the factors that incite companies to collaborate electronically. More specifically, this article proposes to study one of the key dimensions of supply chain collaboration: information sharing (Simatupang & Sridharan, 2004). Information sharing represents a good measure of collaboration, as realistic, informed, and detailed information sharing can improve partners' decision-making processes while encouraging people to act proactively to prevent problems and capitalize on new business opportunities (Min et al., 2005).

Information concerning inventory, sales, demand, forecasting, order status, product planning, logistics, and production schedules can be shared between supply chain partners in order to optimize interorganizational business processes. According to Ovalle and Marquez (2003), shared information can be classified into three types: product information, customer information, and inventory information. Inventory information is especially interesting from a collaboration point of view as it seems to be more sensitive than product and customer information, and so trading partners are less willing to share it (Ovalle & Marquez, 2003). Consequently, firms that share inventory information through Web-based IOISs represent clear cases of collaborative relationships.

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