Chapter 10
Determinants of Manufacturing Firms’ Use of Web-Based IOISs to Share Inventory Information with Key Partners: Comparing the Supplier and Customer Perspectives

Pierre Hadaya
Université du Québec à Montréal, Canada

Robert Pellerin
École Polytechnique de Montréal, 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 chapter analyses the influence of various determinants on manufacturing firms’ intent to use Web-based interorganizational 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. 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. Finally, subsequent analyses also demonstrate that the determinants of manufacturing firms’ intent to use Web-based IOISs to exchange inventory information with key partners are the same whether the intended e-collaboration is to support relationships with key suppliers or key customers.

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INTRODUCTION

In today’s highly global and competitive environment, firms’ competitive advantage highly rests on their IT and supply chain management (SCM) capabilities (Pant et al., 2003; Wade and Hulland, 2004). Supply chain management strategies and techniques are as varied as the disciplines from which they originate and the customers they are to serve (Boone et al., 2007). Nonetheless, within the context of today’s economy, where customer requirements are no longer limited to traditional issues such as higher quality and lower cost but also include speed of delivery and product variability, the adoption of electronic collaboration (e-collaboration) tools and practices is particularly critical to the success of supply chains (Kemppainen and Vepsäläinen, 2003; Sebastian and Lambert, 2003).

The present study aims to extend the body of knowledge in this research stream by identifying and measuring the influence of various determinants on manufacturing firms’ intent to use Web-based Interorganizational information systems (IOISs) to share inventory information with their key suppliers. The second objective of this research is to assess the extent to which the determinants of manufacturing firms’ intent to use Web-based IOISs to exchange inventory information with key partners will vary whether the intended e-collaboration is to support relationships with key suppliers or key customers. This line of inquiry is particularly relevant for two reasons. First, information sharing is one of the key dimensions of supply chain collaboration (Simatupang & Sridharan, 2004) and 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). Secondly, inventory information, one of the three types of information that can be shared between supply chain partners is especially interesting from a collaboration point of view as it seems to be more sensitive than product information and customer information and renders trading partners less willing to share it (Ovalle & Marquez, 2003).

Our decision to measure intended use (within the next 12 months) rather than current use of Web-based IOISs was made for three reasons: (1) As yet, few firms have capitalized on the full potential of e-collaboration (Barratt, 2003; Crum & Palmatier, 2004), and most of the ones that have still rely on EDI systems, not on the Internet, to do so because these proprietary networks were so costly to implement initially. (2) Some authors have already used this approach in studying the adoption of radical technological innovations (Lefebvre, Lefebvre, & Harvey, 1996). (3) The study of “trigger mechanisms” or stimuli to innovativeness represents a definite interest in both theory and practice, particularly in the development of public policies governing small and medium-sized enterprises (SMEs) (Damsgaard & Lyytinen, 1996).

The remainder of this chapter is organized as follows. The next section exposes the relevant theoretical background tied to the adoption of Web-based IOISs to exchange inventory information between supply chain partners. Next, the research model and hypotheses are presented, followed by a description of the research methodology. Research results are then presented and discussed. Next, subsequent analyses are conducted to assess whether the determinants of manufacturing firms’ intent to use Web-based IOISs to exchange inventory information with key partners will vary whether the intended e-collaboration is to support relationships with key suppliers or key customers. The chapter concludes with the research limitations and the prospects for future research.