



The effects of retail channel integration through the use of information technologies on firm performance

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ABSTRACT

The ability of information technologies (ITs) to integrate activities and offerings across multiple channels offers a promising opportunity for retail firms to enhance their relationship with their customers and firm performance. Consumers value the flexibility to learn about the available offerings, complete their orders and obtain customer service across different channels in a convenient and integrated manner. Therefore, the retail industry has begun to use IT extensively to automate and integrate business processes across their traditional and online channels. This study examines the impacts of the use of IT by retail firms in integrating channel activities for selling to customers. Our research model argues that retail channel integration through IT should enhance the efficiency and innovation of a retail firm. In turn, these improvements should enhance their overall performance. We also propose that the environmental dynamism would moderate the effects of improvements in efficiency and innovation on firm performance. We draw upon recent theories in organizational resource integration and organizational learning to develop our research model and hypotheses. Based on survey data from 125 multichannel retailers in Singapore, we find that retail channel integration through the use of IT allows firms to not only be efficient in delivering the current offerings, but also be innovative in creating future offerings. Further, we find that environmental dynamism does positively moderate the effects of innovation ability on performance. Our results provide managerial insights for firms involved in digital integration not only in the retail sector but also in other service industries. These findings could also serve as a foundation for further research on service operations management for firms with both physical and online operations.

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1. Introduction

As a key industry in the service sector, retailers accounted for approximately 6.1% or \$884.9 billion of the U.S. GDP in 2010 (Bureau of Economic Analysis, 2011). Although the retail industry has traditionally been divided into store and non-store retailers, the “brick-and-click” business model is gaining prominence because the integration of retail processes across multiple channels allows retailers to benefit from the strengths of each channel and offer consumers multiple touch points and innovative services (Noble et al., 2009; Smith-Daniels, 2007; Wallace et al., 2004). Technology-savvy consumers now expect to receive pre-sales information, during-sales services, and after-sales support through a channel

customized to their convenience. Hence, multichannel retailers who can effectively manage their integrated service operations are deemed to be more capable of fulfilling the consumers' demands (Burke, 2002; Weinberg et al., 2007).

Retail firms such as Walmart, Macy's, Nordstrom, Best Buy, CompUSA, and Staples have exemplary multichannel retailing practices (Tedeschi, 2007a). However, a recent industry survey found that the majority of the current multichannel retailers have capabilities and systems that are siloed, which results in disjointed marketing and operations across retail channels (Cunnane, 2011). Multichannel retailing is challenging because it requires retailers to have functional integration across areas such as marketing, inventory, order fulfillment, and product returns so that the operations and logistical efforts are streamlined with the front-end marketing activities (Mollenkopf et al., 2007). It involves the extensive use of information technologies (ITs) to digitize and integrate resources and operations from physical and online retail channels.

Although recent supply chain research has examined internal integration, supplier integration, and customer integration of

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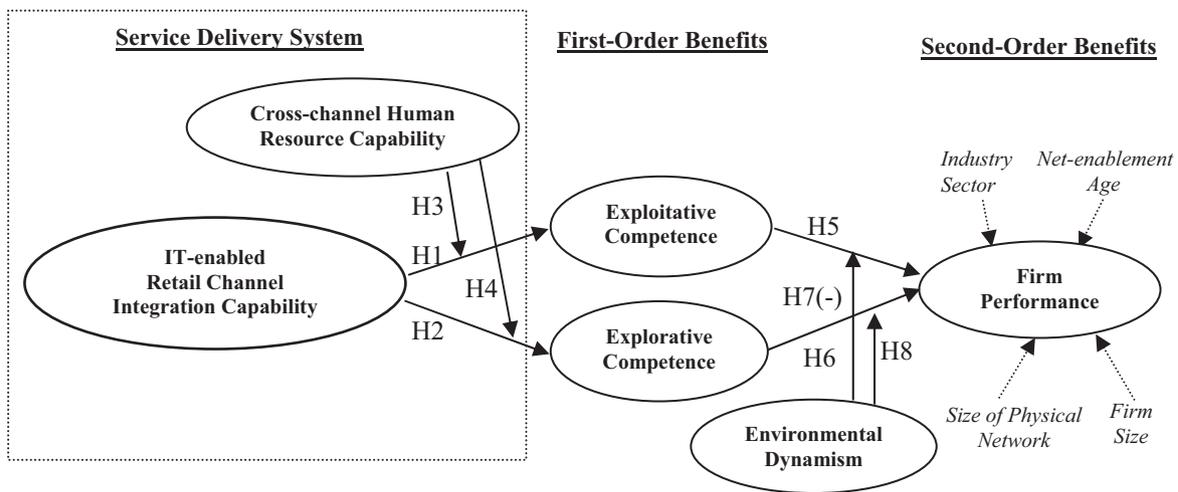


Fig. 1. Research model.

manufacturing firms (e.g., Koufteros et al., 2005; Swink et al., 2007), similar studies of services firms are lacking. Research on the impact of IT in operations management has also been primarily concentrated in manufacturing supply chain integration (e.g., Devaraj et al., 2007; Swink and Nair, 2007). Despite the increasing use of IT in service operations, research about its role has received limited attention in the service operations management literature (Machuca et al., 2007; Menor et al., 2002; Roth and Menor, 2003). Although some recent research has studied the impacts of IT on new product development (NPD) in manufacturing firms (e.g., Banker et al., 2006; Pavlou and El Sawy, 2006), the enabling role of IT in services industries is still relatively unexplored. Therefore, there have been growing calls to understand the connections between information systems (IS) and the design of service delivery systems in information-intensive service domains (Froehle and Roth, 2007; Spohrer et al., 2007).

We utilize theories related to the resource-based view of the firm and organizational learning to propose and empirically test hypotheses about the relationships between IT-enabled retail channel integration and firm performance. Prior research has proposed that when IT and business resources are deployed in a complementary manner, performance gains are likely (Barua et al., 2004; Melville et al., 2004; Ray et al., 2005; Tanriverdi, 2006; Wade and Hulland, 2004). Therefore, we study the complementary effects between the use of IT resources and human resources in retail channel integration. The next section describes the theoretical underpinnings of our research, the research model, and the hypotheses. Next, we describe the data-gathering procedure and operationalization of the constructs in the study. Subsequently, we describe the analysis and present our results. Finally, we discuss the future implications of our research.

2. Theoretical model and research hypotheses

2.1. Resource integration in service delivery systems

The resource-based view (RBV) of the firm has been widely used in service operations management research (e.g., Froehle and Roth, 2007; Menor and Roth, 2008; Roth and Jackson, 1995). It is especially appropriate for understanding the effects of firms' ability to integrate resources in delivering services and engaging in innovation activities (Goldstein et al., 2002; Sirmon et al., 2007). This theory is suitable for examining the effects of people, technology, and information resources across service delivery systems (Roth and Menor, 2003; Spohrer et al., 2007).

Although the RBV emphasizes the possession of rare, valuable, and inimitable resources as drivers of competitive advantage (Barney, 1991), recent theorizing argues that capability-building processes are more significant than resource-picking processes (Makadok, 2001). In competitive environments, the ability to integrate resources into bundles of competences is especially important (Eisenhardt and Martin, 2000; Sanchez, 2004; Sirmon et al., 2007; Teece et al., 1997; Teece, 2007) because they are difficult to imitate and confer firms with superior performance (Coates and McDermott, 2002). By integrating their operations across channels, retail firms can increase the difficulty of imitation because of the interconnectedness of integrated resources. Consequently, competitors would find it more difficult to isolate and identify the factors of success (King, 2007; Lavie, 2006; Pil and Cohen, 2006).

We use the RBV as the underlying conceptual foundation to propose a model that links resources, capabilities, higher-order competences, and firm performance in a service delivery system. Fig. 1 shows the research model. In this model, we examine the effects of two distinct capabilities within the service delivery system of retail firms: the IT-enabled retail channel integration capability and the cross-channel human resource capability. Further, drawing upon organizational learning theories, we propose that these capabilities influence firm competence in exploitation and exploration. These competences are viewed as impacting firm performance. Finally, we propose that environmental dynamism moderates the effects of these higher-order competences on firm performance. In the following sections, we describe the specific aspects of our model and the associated hypotheses.

2.2. IT-enabled retail channel integration capability

IT is becoming one of the most critical resources in service firms (Froehle et al., 2000; Sheehan, 2006); IT can be used to improve operational as well as strategic coordination (Sanders, 2008). IT is especially important for multichannel service operations management because the shareability and reusability of information are necessary for business process integration (Basu and Blanning, 2003). Therefore, it is crucial for multichannel retailers to use IT effectively in integrating their activities across the functional areas so that the consistency and flow of information regarding customers, orders, and inventory can be ensured (Cappiello et al., 2003; Markus, 2000; Vickery et al., 2003).

Consistent with Peng et al.'s conceptualization of operations capability (2008), we define *IT-enabled retail channel integration*

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