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Technical note

The influence of an integration strategy on competitive capabilities and business performance: An exploratory study of consumer products manufacturers

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Abstract

In this paper, we expand upon recent research by Frohlich and Westbrook [J. Operations Manage. 19 (2) (2001) 185] that characterizes the influence of supply chain integration on performance. Introducing supply chain integration intensity as a proxy variable for Frohlich and Westbrook's [J. Operations Manage. 19 (2) (2001) 185] 'outward-facing supply chain strategy', we investigate the ways that manufacturing-based competitive capabilities mediate the relationship between supply chain integration and business performance. While previous research suggests that supply chain integration is directly related to superior business performance, the mediating role of manufacturing capabilities has not been explored. Using hierarchical regression analysis, we develop and test a theory-based model using a sample of consumer products manufacturers. Contrary to Frohlich and Westbrook's [J. Operations Manage. 19 (2) (2001) 185] assertions regarding the applicability of the 'outward-facing strategy' to the consumer goods sector, our results provide empirical evidence that supply chain integration intensity leads directly to improved business performance, thus corroborating the conventional wisdom concerning the increasing importance of supply chain integration in the consumer products sector. In addition, this study uncovers empirical evidence for the mediating role of manufacturing-based competitive capabilities in supply chain management. These results support the growing call for a broader, more generalized view of manufacturing strategy.

Keywords: Manufacturing strategy; Supply chain management; Competitive capabilities; Empirical research

1. Introduction

In their seminal article, Frohlich and Westbrook (2001) (hereafter F–W) draw attention to the ways that supply chain integration influences performance. Our research builds upon and extends their work in three important ways. First, we introduce a *supply chain integration intensity construct* (hereafter integration

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intensity) that serves as a reasonable proxy for F–W's outward-facing supply chain strategy. These authors define five distinct classes of supply chain strategies based upon what they call an 'arc of integration', "representing the relative direction (towards suppliers and/or customers) and degree of integration activity" (Frohlich and Westbrook, 2001, p. 185). According to F–W, the outward-facing strategy reflects the "broadest arc" of integration with both suppliers and customers. Consistent with F–W and the emerging supply chain literature, our definition of integration intensity reflects the relative external integration that is an expression of a firm's cross-business relationships upstream with suppliers and downstream with distributors and customers (Handfield and Nichols, 1999; Salvador et al., 2001; Stevens, 1989; Williams et al., 2002). However, our integration intensity construct goes beyond external integration to include the relative degree of strategic internal integration as well. Anecdotal accounts from practitioners suggest that internal integration is a first step toward achieving supply chain integration (Handfield and Nichols, 1999; National Research Council, 2000; Stevens, 1989; Swink et al., 2002). Additionally, by integrating with suppliers, distributors, and customers, new opportunities for improving internal operations can be further exposed (Lee and Billington, 1992).

Second, we examine the mediating role of manufacturing-based competitive capabilities in supply chain management. In this research, competitive capabilities represent the manufacturer's actual, or 'realized', competitive strength relative to primary competitors in its target markets (Stalk et al., 1992; Ward et al., 1994). A significant body of prior empirical research indicates that capabilities such as quality, delivery, flexibility, and/or cost contribute positively to business performance, either acting alone or in concert with other capabilities (see, e.g. Bozarth and Edwards, 1997; Cleveland et al., 1989; Flynn et al., 1999; Hill, 1994; Roth and Miller, 1992; Swamidass and Newell, 1987; Vickery et al., 1993, 1994, 1997; Ward et al., 1994). Prior research has shown the *direct* linkages between supply chain integration and capabilities as well as between supply chain integration and business performance (Frohlich and Westbrook, 2001; Khurana and Talbot, 1998; Kopczak, 1997; Roth, 1998). To the best of our knowledge, the present study is the first to empirically investigate the ways that competitive capabilities mediate the relationship between supply chain integration and multiple measures of business performance, thereby contributing to the literature on capabilities-based competition (Clark, 1996; Hayes and Pisano, 1996).

Third, we explore the influence of integration intensity on capabilities and business performance using a sample of consumer products manufacturers. Whereas F–W, in contrast, employed a sample of industrial goods manufacturers. They conclude:

> ... The results of this study should, therefore, be carefully generalized to other sectors such as the consumer goods manufacturers. It may be more difficult for consumer goods manufacturers to integrate with customers—especially ones that sell directly to end-users. In addition, such manufacturers tend to have broader customer bases that complicate integration efforts (2001, p. 188).

Deloitte Research-Manufacturing Institute (1998, p. 9) offers an alternative perspective:

> The need to revamp manufacturing and distribution processes has compelled consumer products manufacturers to focus on the supply chain. Leading executives realize that future competitive advantage will stem from tightly integrated partnerships and synchronized activities with suppliers, retailers, and customers.

In order to investigate these two differing views, we subject a sample of consumer products manufacturers to rigorous empirical scrutiny.

In this paper, we present three theory-driven hypotheses regarding the relationship between integration intensity and business performance, as mediated by manufacturing-based competitive capabilities (see Fig. 1). We operationalize the integration intensity construct as a metascale comprising internal and external integration variables. Using hierarchical regression analyses, we demonstrate that each capability mediates the influence of integration intensity on business performance, acting in different ways. Contrary to F–W's concerns regarding the generalizability across sectors, our results also corroborate conventional wisdom that integration intensity influences capabilities and business performance directly.