



Production, Manufacturing and Logistics

How should process capabilities be combined to leverage supplier relationships competitively?

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ABSTRACT

Two process capabilities have been identified in the operations management literature to leverage supplier relationships for competitive performance: the ability to continuously improve processes with suppliers (process alignment) and the ability to make changes to these relationships (partnering flexibility). While firms may need both capabilities to be successful, it is unclear what strategy should be used to combine these two seemingly contradictory process capabilities. Using data collected from 318 manufacturing firms on a focal firm's process capabilities to manage supplier relationships, we examine the performance impacts of two dimensions of a particular strategy: balancing (focusing on achieving a close match between the two process capabilities) and complementing (focusing on creating synergy between the two process capabilities). Our results indicate that the balancing dimension has a much stronger effect on a firm's competitive performance than the complementing dimension. Also, when a firm pursues a high balance and strong complements strategy (combining high levels of both process capabilities), it is able to reduce its competitive performance risks more than when it pursues a high balance and weak complements strategy (combining low levels of both capabilities) or when it implements unbalanced strategies that emphasize either process alignment or partnering flexibility (combining low levels of one capability with high levels of the other). We conclude by discussing the theoretical contributions and practical guidelines.

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1. Introduction

Global competition, the ability to integrate information technology and process resources across firms, availability of information in supplier and customer markets, customer-focused marketplaces, and shortened product life cycles have led to a major change in competition from firm versus firm to supply chain versus supply chain (Grieger, 2003; Gunasekaran & Ngai, 2004). As firms like Wal-Mart, Cisco, and Apple have emerged as dominant leaders in their respective industries through effective supplier management, there are calls in both practice and the operations research community to understand what capabilities firms need to derive competitive advantages through supplier management (Grieger, 2003; Otto & Kotzab, 2003; Samaddar, Nargundkar, & Daley, 2006). In contemporary markets, firms usually need to interact simultaneously with a group of suppliers to achieve their strategic

goals (Lavie, 2007). For example, Apple's *iPod* consists of more than 400 components, all of which are developed, manufactured, and assembled through a global network of suppliers (Linden, Kraemer, & Dedrick, 2009). Firms also need to be able to exploit and explore supplier relationships to access complementary resources and capabilities (Burke, Carrillo, & Vakharia, 2007; Iida, 2012). Continuing with the Apple example, the company has dynamically managed supplier relationships for its *iPod* product line to access component innovations (e.g., color LCD displays, wireless networks, and solid state drives), introduce 110 model variants between 2001 and 2009, and excel in supply chain execution. The required dynamism to exploit and explore supplier relationships makes developing process capabilities to manage supplier relationships a pivotal challenge for a firm's operations strategy.

Past research on exploiting and exploring supplier capabilities has identified two key process capabilities to leverage supplier relationships: (1) process alignment, which is defined as a firm's ability to coordinate interdependent activities and optimize operations with its suppliers (Clark & Stoddard, 1996; Jarvenpaa & Stoddard, 1998; Tang & Rai, 2012) and (2) partnering flexibility,

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which is defined as a firm's ability to adjust its supplier portfolio for a product line (Shapiro & Varian, 1999). Aligning processes with suppliers promotes supply chain integration, reduces information asymmetries, and enhances economies of scale and scope (Frohlich & Westbrook, 2001; Gulati, Nohria, & Zaheer, 2000). Partnering flexibility provides firms with access to new information, complementary expertise, new markets, and innovative technologies (Shapiro & Varian, 1999). While the performance consequences of both process alignment and partnering flexibility have been examined individually (Rosenzweig, Roth, & Dean, 2003; Zhao, Huo, Flynn, & Yeung, 2008), very few empirical studies have simultaneously examined these two seemingly contradictory process capabilities in terms of supplier management. One notable exception is Kristal et al.'s (2010) study, which investigates the performance implications of the simultaneous pursuit of explorative and exploitative supply chain practices. However, to the best of our knowledge, different strategies to combine process alignment and partnering flexibility and the resulting competitive performance implications have not been examined in previous work. To address this void in our understanding, we identify the following two dimensions of an operations strategy that can be used to combine process alignment and partnering flexibility: (1) the *balancing dimension* (a firm's orientation to maintain a close relative match between process alignment and partnering flexibility) and (2) the *complementing dimension* (a firm's orientation to focus on the synergy between the two process capabilities)² (Cao et al., 2009). We evaluate the impact of these two dimensions of a firm's process capability strategy on competitive performance, which is defined as a firm's achievement of its objectives in relation to the external environment (Ferrier, 2001; Porter, 1980b). We also explore how performance risk—defined as the variation in competitive performance while adjusting for the mean (March & Shapiro, 1987)—is impacted by the different combinations of the balancing and complementing dimensions (high balance and weak complements, unbalanced relationship with emphasis on either process alignment or partnering flexibility, and high balance and strong complements).

By focusing on the two dimensions of a firm's operations strategy to combine process alignment and partnering flexibility and investigating the causal mechanisms of each of these dimensions that influence competitive performance, we contribute to our understanding of how supplier relationships can be leveraged for competitive performance (Kouvelis, Chambers, & Wang, 2006; Swink, Narasimhan, & Kim, 2005). Using data collected on a firm's management of supplier relationships for a major product line, we identify the competitive performance consequences of balancing and complementing process alignment and partnering flexibility. We develop a rich picture of the implications of strategies to combine process alignment and partnering flexibility by considering not only the means but also the risks of competitive performance. Not only do our findings surface the competitive implications of developing individual process capabilities, but they also highlight the strategies used to combine process capabilities, raising important managerial implications for supplier management.

2. Theory development and research model

2.1. Process capabilities for supplier relationship management

Firms function as systems of interlinked processes whose capabilities have a significant impact on strategy formation and competitive performance (Benner & Tushman, 2003). While intra-firm processes have received significant attention for some time, the importance of inter-firm processes to manage relationships has grown rapidly as of late due to globalization, intense competition, and dynamic environments. In fact, supplier relationships have increasingly been considered strategic assets that considerably influence a firm's performance (Hult, Ketchen, & Nichols, 2002; Johnson, Sohi, & Grewal, 2004).

We draw on the process management literature to understand the process capabilities required to effectively manage supplier relationships. The literature provides insights into approaches to reduce the variation and increase the efficiency of inter-firm processes with suppliers (e.g., Ittner & Larcker, 1997). It also cautions that a singular focus on process improvement can constrain a firm's innovation and flexibility. Two distinct process capabilities—process alignment and partnering flexibility—have been considered to be important for the effective management of supplier relationships (Krajewski & Wei, 2001; Shapiro & Varian, 1999). We describe these two process capabilities below.

Process alignment aims to improve business-to-business exchange processes by facilitating collaboration with partners. For example, higher levels of process alignment with partners should enable firms to improve the coordination of material movement (Srinivasan, Kekre, & Mukhopadhyay, 1994), which can reduce transaction costs, lower lead times, reduce order fulfillment errors, and increase inventory turnover rates (Malone & Crowston, 1994; Rai, Patnayakuni, & Seth, 2006; Simchi-Levi, Kaminsky, & Simchi-Levi, 2007). Additionally, improved process alignment with partners should reduce the cycle time for cash conversion (Magretta, 1998) and enhance profitability. Indeed, best-practice firms, such as Cisco, have fine-tuned processes with their supplier networks to increase productivity and reduce costs (Kraemer & Dedrick, 2002).

With the increasing prevalence of modular design in product development, supply chains are shifting to a more flexible and disaggregated form (Schilling & Steensma, 2001; Zenger & Hesterly, 1997). *Partnering flexibility* refers to a firm's ability to terminate, add, or replace existing partners with new partners in its supplier portfolio for a major product line (Tang & Rai, 2012). In a dynamic environment, changing customer preferences and shorter product lifecycles require firms to deliver new services or customer-specific add-ons and to modify standard products within short periods of time and at reasonable costs. To achieve these objectives, firms frequently need to adapt their supplier portfolios by adding, replacing or terminating partners to bring in fresh ideas, valuable knowledge, and innovative technologies that they themselves cannot replicate in a timely manner or obtain from existing partners (Burke et al., 2007; Rai & Tang, 2010; Shapiro & Varian, 1999). This market responsiveness also requires them to have the process capability to source the same resources and capabilities at better market prices when competition drives costs down (Hoetker, 2006; Wagner & Friedl, 2007). As such, partnering flexibility enables a firm to overcome the resource rigidities that develop when its relationship portfolio is not renewed and when a firm is over-embedded in long-term relationships (Uzzi, 1997).

While the performance impacts of each of these two process capabilities have been examined in the literature (Koufteros, Vonderembse, & Jayaram, 2005; Rosenzweig et al., 2003), we know little about the competitive performance implications when these

² Our conceptualization of the "balancing" and "complementing" dimensions of a firm's operations strategy to combine process alignment and partnering flexibility is based on the fit concepts proposed by Venkatraman (1989). As fit can have multiple meanings and functional forms (Venkatraman, 1989), we focus on (1) fit as moderation or complements (where the influence of a given variable on an outcome variable is a function of a third variable) and (2) fit as balance or match (where the difference in the levels of the two variables influences an outcome variable). A similar conceptualization was adopted by Cao, Gedajlovic, and Zhang (2009) to examine the effects of "balancing" and "complementing" a firm's exploitative and explorative activities on its performance.

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