



Manufacturing and supply alignment: Are different manufacturing strategies linked to different purchasing practices?



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ABSTRACT

Despite the recognized importance of the horizontal fit between purchasing and manufacturing, empirical research in this area is scarce. In this paper, we investigate whether different manufacturing strategies translate into different supply management practices. To do this, we develop a numerical taxonomy of manufacturing strategies based on ten competitive priorities using survey data from manufacturing plants in developed countries. Cluster analysis identifies three manufacturing strategy types: *Quality customizers*, *Caretakers* and *Timekeepers*. We then use analysis of variance to compare the purchasing practices of members of different manufacturing strategy groups. Results indicate that the size of the supply base and the percentage of strategic suppliers are not significantly different among the three groups. Considering the criteria for selecting suppliers, we find that *Quality customizers* put significantly more emphasis on all criteria, but firms in the three groups consider the same major criteria when choosing their suppliers. The adoption of coordination mechanisms with suppliers follows a similar pattern. *Quality customizers* show the highest level of adoption of all mechanisms, but the ranking of the level of adoption of the coordination mechanisms is similar in the three manufacturing groups. Overall, results do not show a strong link between manufacturing and purchasing strategies. Manufacturing plants in our sample do not align their manufacturing strategy with dissimilar purchasing practices. We discuss possible explanations for this unexpected result.

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1. Introduction

Researchers have long argued that strategic priorities at the functional level should be aligned with business level strategies (Ansoff, 1965; Andrews, 1971). This vertical fit has been associated with superior firm performance and may become a source of competitive advantage (Peters and Waterman, 1982; Porter, 1996). Researchers in Marketing, OM, HR, and IT have investigated the importance of vertical alignment between strategies and activities within their respective functional areas and the business strategy of the firm. However, as pointed out by Kathuria et al. (2007), the links between functional strategies have been overlooked. In this research, we explore the links between purchasing and manufacturing strategies. Although some attempts have been made to explore this link (Watts et al., 1992; Pagell and Krause, 2002; Brown and Cousins, 2004), empirical research on this topic is scant (Vachon et al., 2009). In this paper, we investigate whether different manufacturing strategies translate into different supply management practices.

2. Manufacturing strategy

Strategy serves to turn a corporation's capabilities into competitive weapons that respond to the external environment, letting the organization achieve its mission and create value. Manufacturing strategy is regarded as the manner in which the business unit deploys its manufacturing resources (Hayes and Wheelwright, 1984). It is the total pattern of decisions that shape the long-term capabilities of any type of operation and their contribution to the overall strategy through the reconciliation of market requirements with operations resources (Slack and Lewis, 2002).

To define its strategy, a firm needs to specify the kind of competitive advantage that it is seeking in the market and define how that advantage will be achieved (Hayes and Pisano, 1994). Hayes and Wheelwright (1984) defined “competitive priorities” as the dimensions along which a company chooses to compete. They proposed four core competitive priorities: (1) quality, (2) delivery, (3) flexibility, and (4) cost. Although some have refined the concept of delivery by splitting it into “speed” and “dependability” (Slack and Lewis, 2002), there is a general consensus in the manufacturing strategy literature around the four main competitive priorities (Krause et al., 2001). Given that innovation has become increasingly important for organizations (Ashkenas et al., 1995; Beinhocker et al., 2009), it this fifth

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dimension should be included among the generic capabilities. Similarly, the importance of the service dimension has grown dramatically in manufacturing firms (Gebauer, 2008; Gebauer et al., 2008), leading several organizations to totally redefine their value creation proposal through a service-dominant logic (Lusch et al., 2008). We thus consider it essential to include service as a competitive priority in this study.

Several taxonomies of manufacturing strategies have been proposed in the literature (Miles et al., 1978; Porter, 1980; Stobaugh and Telesio, 1983; de Meyer, 1992; Miller and Roth, 1994; Kathuria, 2000; Frohlich and Dixon, 2001; Christiansen et al., 2003; Zhao et al., 2006). Among the contributions in this area, Miller and Roth (1994) classified organizations according to a taxonomy based on their competitive capabilities. The classification they obtained is very typical of the generic operation strategies that emerge from a transversal analysis performed on all the taxonomies proposed in the literature (Martín-Peña and Díaz-Garrido, 2008). The taxonomy of Miller and Roth (1994) is based on the relative importance attached to eleven competitive capabilities by 164 large American manufacturing business units. They categorized the business units into three groups, which they called *Caretakers*, *Innovators*, and *Marketeters*. They also explored elements of the strategic context to discern links between profiles identified, and found that the clusters tend to differ in terms of the stage of their product life and by the degree of product standardization. Frohlich and Dixon (2001) revisited Miller and Roth's study and confirmed the three groups identified above using a global sample (IMSS 1998).

3. Purchasing strategy

Purchasing strategy and its potential contribution to the firm's objectives has attracted considerable attention. Most of the research in the area has focused on the strategic nature of purchasing and the importance of linking purchasing to corporate strategy (Das and Narasimhan, 2000; Chen et al., 2004; González-Benito, 2007). Similar to manufacturing, purchasing has evolved from being an obscure support function to having an increasingly important role in helping the firm obtain a sustainable competitive advantage (Brown and Cousins, 2004; Chen et al., 2004; Ellram and Carr, 1994).

The literature on purchasing strategy can be classified in three categories: "specific strategies employed by the purchasing function, purchasing's role in supporting the strategies of other functions and those of the firm as a whole, and the utilization of purchasing as a strategic function of the firm" (Ellram and Carr, 1994: 10). This study falls in the first category. We are interested in specific purchasing strategies, or practices, such as supply base optimization, buyer-supplier relationship development practices, supplier selection and retention, and purchasing integration (Das and Narasimhan, 2000; Krause et al., 2001; Nollet et al., 2005; González-Benito et al., 2010). Purchasing practices represent the content of the purchasing strategy and reflect a particular way of performing purchasing activities (Nollet et al., 2005). They are closely related to day-to-day activities and are internal to the purchasing function (Baier et al., 2008).

4. Alignment between manufacturing and purchasing strategies

The importance of strategic alignment represents a common ground in the field of strategy. The vertical fit between manufacturing and business strategy has been explored extensively in the literature (Skinner, 1969; Buffa, 1984; Ward and Duray, 2000; Rho et al., 2001; Sun and Hong, 2002; Joshi et al., 2003; Slack and Lewis, 2002; da Silveira, 2005). Research on the vertical alignment between supply management and the overall business strategy is more recent

(Narasimhan and Carter, 1998; Narasimhan and Das, 2001; Krause et al., 2001; Cousins, 2005; González-Benito, 2007; Baier et al., 2008). Baier et al. (2008) found that fit between business strategy and purchasing strategy, and between purchasing strategy and purchasing practices, is key to achieving superior financial performance. Exploring the links between purchasing practices, sourcing strategies, and competitive priorities, Narasimhan and Carter (1998) assert that different competitive priorities are associated with different sourcing strategies. For example, firms whose competitive priority is total quality management (TQM) stress TQM and transactional cost management sourcing strategies, while firms focusing on customization and differentiation emphasize TQM sourcing strategies, time-based sourcing, internal integration, and green purchasing. Cousins (2005) also confirmed the vertical alignment between supply strategy and the firm's competitive priorities. Survey data of manufacturing firms in the UK indicate that firms that define their competitive advantage as being cost-focused generally consider supply as playing merely a cost-reduction role, whereas those viewing their competitive advantage as being differentiated see supply as strategic. A different result is reported by Vachon et al. (2009), who found that arm's length interactions, traditionally associated with cost-reduction strategies, were superseded by cooperative interactions in Canadian manufacturers that focus on efficiency.

Because purchasing and manufacturing form the core of the supply chain, the consistency between both functional strategies is crucial to support the corporate-level competitive strategy. Once the firm has chosen a particular manufacturing strategy, the purchasing function should put in place purchasing practices allowing the firm to acquire products that meet the manufacturing requirements (Watts et al., 1992). Despite the recognized importance of horizontal fit between purchasing and manufacturing, empirical research in this area is scarce. Pagell and Krause (2002) found that plants whose manufacturing and purchasing managers share strategic priorities exhibit higher levels of performance than those whose manufacturing and purchasing managers do not agree on the importance of each of the competitive priorities. The importance of strategic integration between supply and operations for improved performance has also been reported by Brown and Cousins (2004). Based on case studies of 24 plants, they found that the integration of supply and operations strategies is linked to reduced WIP, improved inventory management, quicker response times, and improved time-to-market. Strategic integration was operationalized examining the seniority and role of manufacturing and supply personnel and the role and importance of manufacturing and supply strategies within the plant. Similarly, Ellegaard and Koch (2012) found that low integration between purchasing and operations has severe negative effects on the buying company's performance because it generates uncoordinated behaviors that harm supplier resource mobilization. More precisely, they found that the lack of operations support for major purchasing initiatives in a construction company resulted in poor exchange outcomes for the suppliers. While these studies demonstrate the strategic value of the horizontal manufacturing-purchasing integration, they do not explore the nature of this link, i.e. how different manufacturing strategies are associated with different purchasing practices. Do *Caretakers*, *Innovators* and *Marketeters* implement different purchasing practices? Before answering this question, we replicated Miller and Roth's (1994) taxonomy using recent survey data from firms in developed countries.

5. Research methodology

5.1. Data

This study uses data from the 2009 International Manufacturing Strategy Survey (IMSS). IMSS is a global research network

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