

Supplier integration—Finding an optimal configuration

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Abstract

There has been increased interest in supplier integration in recent years, much of it supporting such initiatives in organizations. We operationalize supplier integration as a bundle of practices that include a set of “internal” and “external” practices. We hypothesize that such practices in specific configurations can be as important a source of performance differentials as the adoption of individual practices themselves. We theorize the existence of a level of integration that results in optimal performance. The paper uses data from a cross-section of more than 300 US manufacturing companies to test the notion of an optimal level of supplier integration, and examine the conditions surrounding its development. The results provide empirical support for the concept of an optimal set of supplier integration practices. We show that deviations from the optimal profile are associated with performance deterioration, and that indiscriminate and continued investments in integration may not yield commensurate improvements in performance.

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1. Introduction

Companies that pursue supplier integration have a common question to ask. How do some companies obtain better performance returns than others from similar investments in supplier integration? We hypothesize that some of that success is attributable to the way in which integration practices are combined and organized, rather than just the nature of the practices themselves. We define supplier integration as a state of synergy accomplished through a variety of integration practices among the supplier, purchasing and manufacturing constituents of an organization. We define performance in conventional manufacturing

(cost, quality, delivery) and firm level metrics (profits, ROA, sales growth), from the perspective of the buying firm.

A growing body of research has reported positive associations between firm level measures of integration and organizational *performance* (Kulp et al., 2004; Sherman et al., 2000; Lambert and Cooper, 2000; Bernard, 1996). Considerable ambiguity remains, however, as to how integration as a generic strategy affects performance, whether some integration practices are more central to performance than others, the returns from integration, and whether complementarities among integration practices benefit *performance* (Kulp et al., 2004; O’Leary-Kelly and Flores, 2002; Song and Montoya-Weiss, 2001; Wei and Krajewski, 2000; Song et al., 1998; Karisson and Ahlstrom, 1996; Workman, 1995). While studies have established the salience of integration in rent creation and appropriation, including facilitating successful diversification strategies, process

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development, and improved business performance (Narasimhan and Kim, 2002; Pisano, 1994; Rosenzweig et al., 2003), little attention has been directed to its potential for *rent destruction*. Even so, studies such as Song et al. (1998) examination of integration returns have found that promoting integration indiscriminately may actually decrease performance. Similar to other types of investments, investments in integration are subject to diminishing returns that may eventually deteriorate into negative returns when carried to excess. If a relentless pursuit of integration is not beneficial, ignoring integration entirely is obviously not in a firm's best interests either. The issue is interesting and important—how much integration is optimal? We argue that the relationship between integration and *manufacturing* performance is of multivariate nature with a curvilinear shape, where unique configurations of integration practices will yield superior rent. Thus, the organization of integration initiatives may be as important a basis for *manufacturing* performance heterogeneity as the initiatives themselves. We further suggest that conditions may demand a reduction in initiatives, contrary to the 'more is better' belief driving organizational investments today (Falah et al., 2003).

We draw on several theoretical bases to examine these issues. First, the resource-based perspective is used to build support for a configurational view of integration, suggesting that it is not the impact of isolated practices that matters but the performance synergies that emerge from specific arrangements of practices. Second, transaction cost analysis (TCA) tenets are utilized to explain from a theoretical perspective the process through which integration promotes performance *heterogeneity*. TCA suggests a positive role for integration in reducing cost and improving performance. Finally, we turn to institutional isomorphism theory to explain why integration may lead to negative consequences for a firm. Based on these theoretical frameworks, the paper proposes an intermediate position in integration initiatives, explaining why curvilinear returns can be anticipated in the relationship between integration and performance.

The study breaks new ground in that it investigates whether an excess of investment in integration practices can be harmful. This raises the issue of what is an 'ideal profile' of investments in integration practices. We explore this in detail using industry data, following well-established procedures in prior research. This study contributes to the body of knowledge in supplier integration in significant measure. We advance and test the notion that performance heterogeneity derives as

much from the choice of particular configurations of supplier integration practices, as from the nature of a particular supplier integration practice. Our primary focus is to verify if such patterns in supplier integration practices do indeed exist and generate performance heterogeneity. In doing so, we develop an initial set of supplier integration practices and raise issues of sequence and synergy among these practices, both for current consideration as well as for future research. We further examine the conditions surrounding the development of such optimal arrangements of practices. Finally, we discuss the new application of a methodology to integration research that offers some important advantages over conventional approaches. The empirical setting for our inquiries is the discrete manufacturing industry.

2. Supplier integration

Integration is motivated by the recognition of interdependency. In earlier, more vertically integrated times, the concern was to get various functional areas in a company to work together to meet corporate goals. With increasing portions of the product value being partitioned to entities outside the organization, companies must integrate activities across partners and supply chains to effectively deliver products to the market (Frohlich and Westbrook, 2001; Lin, 2004).

We define supplier integration as a state of syncreticism among the supplier, purchasing and manufacturing constituents of an organization. Integration has been the thematic focus of a number of studies dealing with supply chain management (Evans et al., 1993; Lee and Billington, 1992). Supply chain integration includes customer/market integration (Kahn and Mentzer, 1998), information integration (Pedler, 1994), logistics and distribution integration (Chiu, 1995), supplier integration (Morgan and Monczka, 1996), and purchasing integration. Of these, supplier integration is the focus of this paper. It is distinguished from the broader concept of supply chain integration (Narasimhan and Kim, 2002), by a primary focus on intra-company and supply base integration.

The mechanisms for integration span technology initiatives such as electronic data interchange (EDI) and web-based integration systems, applications software such as enterprise resource planning (ERP) systems and supply-chain-optimization (SCO) software, and relational capital development initiatives such as cross-functional involvement, supplier relationship development, and joint problem solving. Initiatives typically

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