

outsourcing

*electronic
commerce*

**FOCUS
STUDY**

total cost

ethics

*supply chain
management*

strategic alliance

global sourcing

*purchasing
consortiums*

*operational
resource management*

minority enterprises

An Investigation of Supplier Development and Its Role in New Product Development

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CAPS Research
2008

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Executive Summary

Introduction

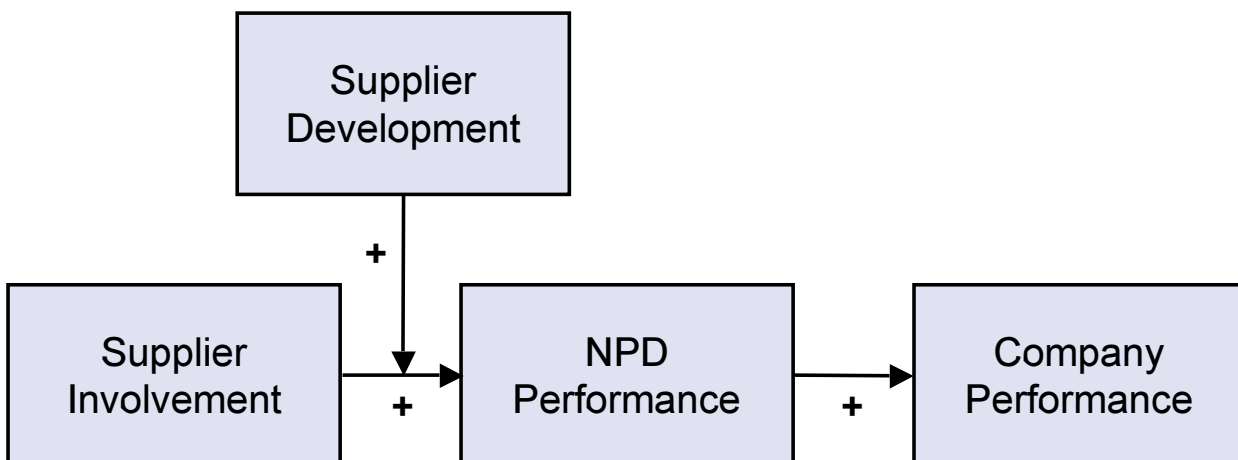
Industrial firms engage in innovation activities to produce new products and to upgrade existing ones. One of the goals of these activities is to differentiate products from competitors' products and thus preserve or enhance profit margins. New product development (NPD) efforts typically proceed through the various stages of concept, design, prototyping, process development and product release (Wheelwright and Clark, 1992).

The primary focus of this study was to examine German industrial firms' NPD processes, the importance of suppliers in these processes and the efforts by these industrial organizations to influence supplier performance. In other words, we sought to compare buying firms' efforts to influence supplier performance through their supplier development efforts during the NPD process. For purposes of this study, we defined supplier development as "any activity undertaken by a[n] industrial] customer firm to improve supplier

performance and/or capabilities to meet the customer firm's supply needs" (Krause, Scannell and Calantone, 2000). We intentionally defined supplier development broadly because the approaches taken by industrial firms to improve the performance of suppliers vary significantly, and we sought to capture this variation. For example, one of the case firms in this study used reverse auctions during the NPD process, while other firms used a combination of supplier evaluation and design competitions, or used supplier development teams to help suppliers. Ultimately, we leave it up to our readers to determine which approach may be appropriate in a given sourcing situation.

Figure 1 provides a model of the primary factors we chose to study in the present research. The notion that suppliers are often involved in NPD is undisputed. Further, the idea that supplier involvement has produced some benefit for industrial firms is also well documented in the academic literature. Our focus, as shown in Figure 1, is to investigate the moderating

Figure 1: Model of Factors of Interest in this Study



factor of supplier development by the industrial buying firm on the relationship between supplier involvement in NPD and NPD performance.

Key Findings

We interviewed managers from 10 manufacturing companies in Germany and Switzerland whose companies produced various products, including automotive (passenger cars and commercial vehicles), electronics assembly machines, compaction equipment, hearing aid instruments, precision analytical equipment, defense systems and consumer goods. We found significant differences across industries and across firms in terms of how they perform NPD, the role of the purchasing function and suppliers in the NPD process, and the relationship between R&D and purchasing as it pertains to NPD.

The case study firms differed in their approaches to NPD. This variation was manifested in the number of phases evident in the companies' NPD process models and the activities scheduled within each phase. A typical NPD model that depicts many of the characteristics of the models used by the case firms is shown in Figure 2. In general, however, there were more similarities than differences across the companies, the differences primarily reflecting the nature of the types of products being developed, the industry in which the companies competed and the unique contributions of the personnel involved in NPD within those companies.

Supplier evaluation played a significant role in the NPD processes of the firms we visited. Some of our case study firms performed several waves of supplier evaluation at different stages of the NPD process. These

waves were often directly in sync with quality gates. Supplier evaluation served as a tool for evaluating risk — risk in terms of the probability of a supplier's failure to perform, and also as a way to verify that the supplier was indeed on track in terms of the NPD timeline. Trust appeared to be the byline guiding these efforts.

An example of one company's approach to supplier evaluation is provided in Figure 3. To gauge the need for supplier evaluation, Company C differentiated between new and existing suppliers, and simpler parts versus complex systems. The vertical axis represents the complexity of suppliers, with complexity and risk of the sourcing situation increasing as the firm moved away from "existing suppliers without changes." Similarly, the horizontal axis represents more complexity in the part or system that was being sourced, which is highly correlated with increased risk. Assessment of the sourcing situation using this matrix resulted in a decision of how to allocate resources for evaluations of suppliers. New suppliers were typically evaluated via a comprehensive on-site visit, although new suppliers for standard parts were given less attention, and the decision on whether to perform a comprehensive on-site evaluation was made by a cross-function team. Existing suppliers with whom Company C had significant experience, but where the supplier or the sourcing situation represent significant change, also were treated with significant caution and a risk avoidance posture. Thus, Company C used this matrix as a guideline for supplier evaluations, which in turn yielded critical information as to whether supplier development was needed.

We found significant variation in the way industrial firms work to improve the performance of their suppliers. The firms we visited used reverse auctions and other types of competitions to incite performance improvements among

Figure 2: A Typical NPD Model from the Core Firms

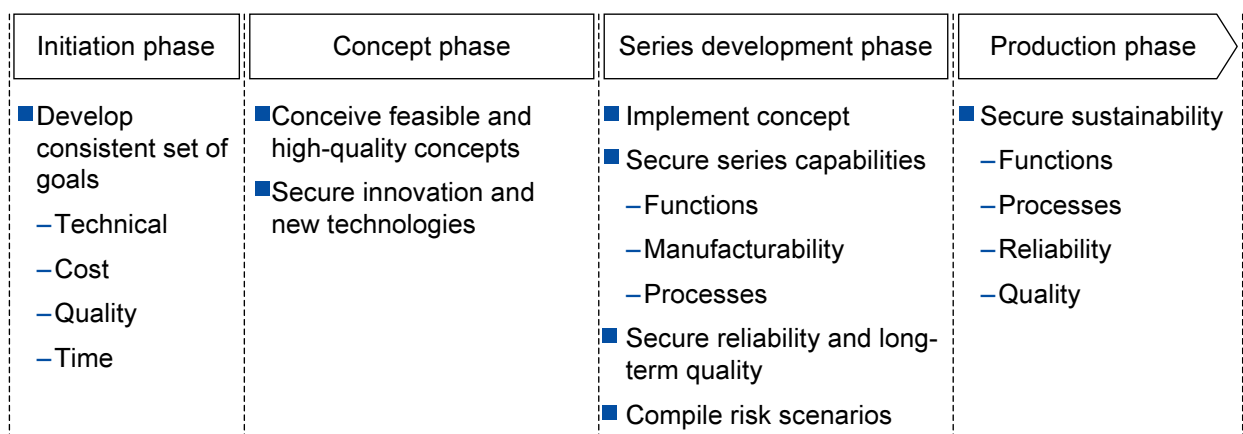


Figure 3: Company C's Approach to Gauging the Need to Evaluate Suppliers

New Suppliers			
Existing Suppliers With Changes			
Existing Suppliers Without Changes			
	Standard Parts	Simple Parts	Standard Parts/ Systems

suppliers. Other firms used more cooperative activities such as assigning manufacturing engineers to work with suppliers to help them improve their internal operations and, in some cases, their supply chain management activities. Other firms focused on locating or developing new technologies to incorporate new ideas and new technologies from suppliers into their latest NPD efforts, and these goals came with a focus on small research-focused firms and also on R&D developments at universities. Thus, the term “supplier” is defined very broadly in this report, and includes not only firms that one would typically think of, but also universities and similar knowledge-generating organizations.

The case study firms routinely differentiated between their primary suppliers and other non-primary suppliers in terms of their involvement in NPD. These primary suppliers were referred to as “golden” or “innovative” or “A” suppliers, depending on the firm. But, each of the companies we visited recognized key suppliers that played a significant role in the NPD process and on whom the success of the NPD process significantly depended.

Another differentiation made very explicitly by the case study firms was among those suppliers that had previously done business with the buying firm versus those that had not. For suppliers that were new to the firm, extensive evaluations of the suppliers' capabilities were performed, and a small number of the case firms

went to great lengths to “socialize” the suppliers. For example, one of the case firms expended a lot of resources to meet with the supplier's management and to “experience” the supplier on-site to understand the supplier, its management philosophy and the way it communicates within its organization. Further, it expected the supplier's management to exhibit the same level of curiosity about its new customer and to make every effort to understand its needs. This process, referred to internally by one of our case firms as “cultural equalization,” represented a significant face-to-face effort on the part of the buying firm to share tacit, difficult-to-convey information about its philosophy and its expectations as a customer.

The sections of this report that examine the NPD process and its various phases, look at supplier *involvement* in NPD and subsequently examine supplier *development* in NPD. The report also views supplier development in NPD from the following different angles: (1) supplier development in NPD based on supplier type and (2) supplier development in NPD based on industry, the strategy of the company or both. The report also addresses the initiation and implementation of supplier development in NPD and provides insights on measuring the progress of supplier development in NPD as well as the financial considerations of these efforts. The report concludes with summary comments from the managers we interviewed and provides thoughts for future research in this area.