MIT

Massachusetts
Institute of Technology

Winter 2000

Volume 41
Number 2

SLOAN
Management Review

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Reprint 4123

Avoid the Pitfalls in Supplier Development

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Firms gain competitive advantage by improving the performance of suppliers and by sidestepping the snares common to such efforts.

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As manufacturing firms outsource more parts and services to focus on their own core competencies, they increasingly expect their suppliers to deliver innovative and quality products on time and at a competitive cost. When a supplier is incapable of meeting these needs, a buyer has three alternatives: (1) bring the outsourced item in-house and produce it internally, (2) change to a more capable supplier, or (3) help improve the existing supplier's capabilities.

All three strategies can work. The choice often depends on price, volume, or the strategic nature of the procured item. For low-value-added, nonstrategic commodities, the cost of changing to a new supplier is low, and switching may be the best option. At the other extreme, when an underperforming supplier provides an innovative product or process technology (that may be of sustainable long-term advantage to the buyer), the buyer may wish to protect this potential advantage and bring the work in-house by acquiring the supplier. In those cases that lie between these two extremes — and even at times including these extremes — the best option may be "supplier development."

We define supplier development as any activity that a buyer undertakes to improve a supplier's performance and/or capabili-

ties to meet the buyer's short-term or long-term supply needs. Buying firms use a variety of activities to improve supplier performance, including assessing suppliers' operations, providing incentives to improve performance, instigating competition among suppliers, and working directly with suppliers, either through training or other activities.[1]

Supplier development requires both firms to commit financial, capital, and personnel resources to the work; to share timely and sensitive information; and to create an effective means of measuring performance. Thus, this strategy is challenging for both parties. Buyer executives and employees must be convinced that investing company resources in a supplier is a worthwhile risk. Supplier executives must be convinced that their best interest lies in accepting direction and assistance from their customer. Even if the two companies mutually agree that supplier development is important, success is not a foregone conclusion.

Although difficult, supplier development can be an important "cornerstone" in the deployment of a truly integrated supply chain. The average manufacturing firm spends over 50 percent of its revenues on purchased inputs.[2] With companies continuing to increase the volume of outsourced work across industries,[3] this percentage is likely to rise. Consequently, suppliers will have a greater impact on the quality, cost, technology, and delivery of a buying company's own products and services, and thus on its profitability. The direct effect of supplier performance on a buyer's bottom line highlights the importance of optimizing supply-chain performance. Thus, we propose the following.

It is best to view supplier development as a long-term business strategy that is the basis for an integrated supply chain.

Continuous long-term improvement of supplier performance is only achieved by (1) identifying where value is created in the supply chain, (2) positioning the buyer strategically in line with value creation, and (3) implementing an integrated supply-chain management strategy to maximize internal and external capabilities throughout the supply chain.

We believe that improved supplier performance will not be realized or sustained unless buyers recognize procurement and supply-chain management (SCM) as sources of competitive advantage and align their SCM strategy with their overall business strategy.[4] Any performance improvements gained without this strategic alignment are likely to be short term and perhaps only tactical in nature. Some companies with successful supplier-development programs suggest that first

Real-Life Supplier-Development Experiences

Our findings are based on a survey funded by the Global Procurement and Supply Chain Benchmarking Initiative (GEBN) at Michigan State University and case studies funded jointly by the Center for Advanced Purchasing Studies (CAPS) in Tempe, Arizona, and the Center for International Business Education and Research (CIBER) at Michigan State University.

The GEBN study examined processes that organizations use to develop suppliers, as well as the obstacles to success. Approximately 200 companies participated in a long-term research initiative that involves responding to a series of benchmarking surveys. These survey efforts focused on critical procurement and supply-chain-management strategy areas. The response rate for the supplier development study was 41.5% (83/200) and included firms from the following industries: industrial products (38%), services (14%), consumer durable goods (13%), consumer nondurable goods (8%), capital goods (2%), and other (25%). The surveys varied in length, but generally required between 10 and 20 hours to complete. Survey questions were qualitative (requiring in-depth descriptions of company practices) and quantitative (including Likert-type scales and categorical questions). To address survey questions comprehensively, responding managers needed to consult design and production engineers, buyers, quality managers, inventory controllers, and others.

CAPS and CIBER funded detailed case studies of the problems encountered during supplier development. The researchers conducted interviews with purchasing executives, engineers, quality managers, and operations managers in several organizations worldwide. This facilitated comparing supplier-development practices within the same industry, but in different countries. The study targeted electronics/electrical and automotive industries, because they are highly competitive, experience high rates of technological change that shorten product life cycles, and have large global firms that produce multinationally. These characteristics contribute to their need for world-class suppliers and force participating firms to continuously improve product quality and reduce product costs.

The collected data was diverse, so researchers constructed a "meta-matrix" to summarize each major process associated with each code and concept for each site. They refined these conceptual linkages in order to develop recommendations for avoiding the pitfalls described in this article.

The underlying axiom is that 20 percent of suppliers is responsible for 80 percent of the poor performance.

addressing easy-to-fix supplier problems helps build momentum. This is true. However, it is best to view supplier development as a long-term business strategy that is the basis for an integrated supply chain. The first step, therefore, is to successfully implement supplier-development programs. This study addresses the pitfalls that impede such efforts.

This article presents survey data and examples drawn from case studies of electronics and automotive companies in the United States, the United Kingdom, Japan, and South Korea. These examples illustrate specific supplier-development practices and examine how these companies avoided or mitigated common pitfalls in assisting their suppliers. (For details of the study, see "Real-Life Supplier-Development Experiences.")

We begin by describing a process map that many firms intuitively employ. We found that, although most firms are able to identify suppliers requiring development, relatively few are completely successful in their supplier-development efforts. Then we explore the most significant pitfalls in supplier development and present strategies used to avoid them. Our goal is to provide general guidelines for supplier-development efforts.

A Process Map for Supplier Development

After scanning supplier-development strategies used in more than sixty organizations, we developed the following seven-step generic process map for deploying these initiatives.[5] Other case studies of supplier-development efforts describe variations of this model.[6] Most of the organizations studied deployed the first three or four steps, but they were less successful with the remaining steps.

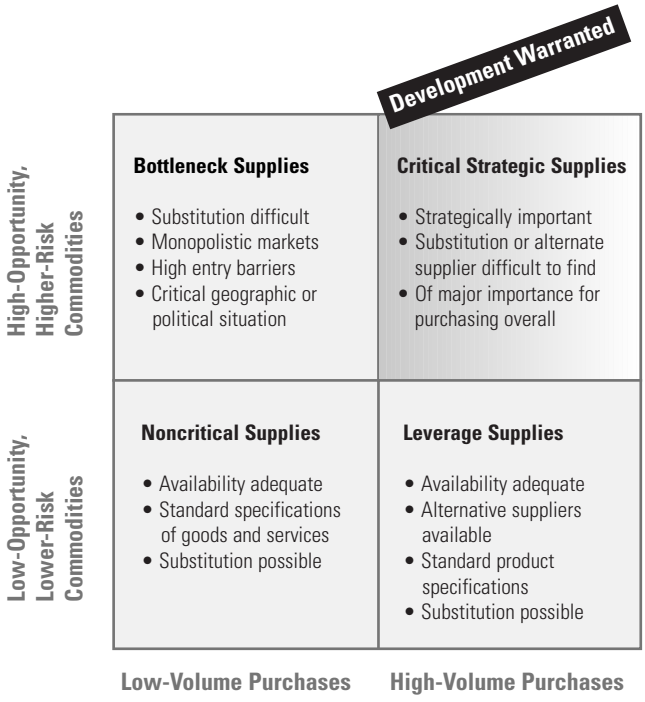
Step 1: Identify Critical Commodities

Not all companies need to pursue supplier development. Some may already be sourcing from world-class suppliers because they have made effective sourcing decisions and supplier selections. Or their purchases may be so small in proportion to total costs or sales that investing in suppliers is neither strategically nor financially justifiable. Therefore, managers must analyze their situation to determine whether supplier development is warranted,[7] and, if so, which purchased commodities and services require the most attention.

To focus the effort, a corporate-level executive steering committee must assess the relative strategic importance of all goods and services that the company buys and produce a "portfolio" of critical commodities (products or services essential for success in a targeted industry segment). This assessment is an extension of the company's overall corporate-level strategic planning and should include participants from the functions affected by sourcing decisions (finance, marketing, information technology, accounting, production, and design). (See *Figure 1*, a matrix used to assess the relative importance of company purchases.)

After classifying commodities accordingly, the resulting portfolio consists of clusters of "noncritical supplies," "bottleneck supplies," "leverage supplies," and "strategic supplies." Commodities in the "strategic supplies" category are considered strategically impor-

Figure 1
Commodity Portfolio Matrix



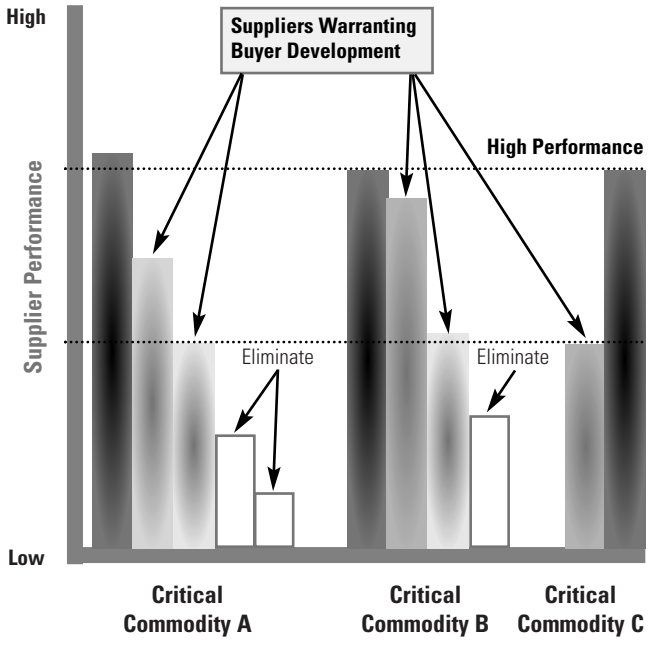
tant, difficult to substitute or purchase from alternative suppliers (often due to an oligopolistic market), important to purchasing overall, and purchased in relatively high volumes. These commodities become the targets for individual study by dedicated commodity teams.

Step 2: Identify Critical Suppliers

Next, managers must assess how suppliers of strategic supplies are performing to determine which ones to develop. A common approach involves a Pareto analysis of current supplier performance *(see Figure 2)*. In this case, the underlying axiom is that 20 percent of suppliers is responsible for 80 percent of the poor performance. Thus, Pareto analysis is useful in identifying suppliers with potential for development, as well as those that are underperforming, low-volume suppliers.

Identifying poorly performing suppliers requires systematically analyzing supplier performance data. Many leading companies monitor supplier performance on a plant-by-plant basis, ranking suppliers from best to worst. They target suppliers that fail to meet minimum performance objectives in quality, timely delivery, cost, technology, or cycle time for analysis and eventual supplier development. The buying firm meets with supplier representatives to determine the cause of the problem(s) and the required corrective action(s). If supplier development is warranted, both firms must harness the resources to drive the improvements. If improvement is not forthcoming, the item(s) may be sourced from an alternate supplier.

Figure 2
Pareto Analysis of Supplier Performance



Step 3: Form a Cross-Functional Team

Before approaching suppliers to ask for improvements, a buyer must first develop internal cross-functional consensus for the initiative. Such consensus shows the supplier a "unified front" and ensures that all buyer functions send the supplier consistent messages. Purchasing executives continually emphasize that improvements begin from within through "buyer-focused" activities. A buyer must have its "own house in order" before expecting commitment and cooperation from suppliers. Furthermore, to optimize supplier contributions, a buyer must first establish its supply-chain strategies and roles of procurement so that its business objectives are clear.

Step 4: Meet with Supplier Top Management

Next, the buyer's cross-functional commodity team approaches the supplier's top-management group and establishes three keys to supplier improvement: strategic alignment, measurement, and professionalism. Strategic alignment requires not only an internal business-technology alignment but also buyer-supplier alignment that focuses on each customer's requirements throughout the entire supply chain. Supplier measurement requires a total cost focus as well as credibility and participation of purchasing and other key technical functions (such as engineering, quality, information systems, and manufacturing) in both organizations. Approaching a supplier's top managers with a good business case for improvement sets a professional tone that reinforces the relationship, fosters communication, provides specialized expertise, and develops trust.

Step 5: Identify Key Projects

After identifying promising opportunities, managers must evaluate them in terms of feasibility, resource and time requirements, and potential return on investment. The goal is to decide whether they are achievable, and if so, what the goals should be. Additional criteria used to evaluate opportunities include willingness and ability of supplier (and buyer) to implement changes, duration of product/service life, strategic importance of the product/service and its impact on the business, return on investment, impact analysis, and standardization.

Failure to implement improvements stems chiefly from lack of commitment or lack of technical or human resources.

Step 6: Define Details of Agreement

After identifying a potential improvement project, the parties need to agree on the specific metrics for monitoring its success. The metrics may include percent of cost savings to be shared, percent of quality improvement to be achieved, percent of delivery or cycle-time improvement desired, key product or service performance targets, technology availability, and system implementation targets. The agreement also must specify milestones and deadlines for improvements as well as the role of each party — who is responsible for the project's success, and how and when to deploy the allocated resources. Upon reaching an agreement, the project begins.

Step 7: Monitor Status and Modify Strategies

To maintain momentum in the project, managers must monitor progress and constantly exchange information. Revisiting objectives after attaining a milestone may bring to light the need for new or revised objectives. The parties may need to modify the original plan because priorities may change and additional resources may be needed. In short, the strategy must be revisited to stay "in sync" with events.

Falling Short of the Model

Eighty-four companies (in the fields of telecommunications, automobiles, electronics, computers, services, chemicals, consumer nondurable goods, and aerospace) participated in our supplier-development survey (see "Real-Life Supplier-Development Experiences"). Our evidence indicates that supplier development works — some of the time. We asked managers to describe the benefits realized from their most successful supplier-development efforts. The distribution of the percentage increases in buyer satisfaction clearly indicated that not all supplier-development efforts were equally successful. While most buying firms reported increased satisfaction in such areas as total cost, quality, delivery performance, product innovation, and cycle time, a few reported that supplier development actually led to *decreased* satisfaction — and those projects were their most successful efforts!

To better understand these results, we interviewed managers of several electronics and automotive companies in the United States, the United Kingdom, Japan, and South Korea. We found that many had identified the critical commodities and suppliers requiring development, and, in many cases, had formed cross-functional teams to initiate supplier-development efforts. However, the efforts fell short of their expected outcomes because of pitfalls they encountered in the final three stages of the generic process outlined earlier — that is, identifying key projects, defining the details of the agreement, and monitoring status and modifying strategies when necessary.

On the basis of our survey of 84 companies as well as the field interviews, we divide these pitfalls into three categories: supplier-specific pitfalls, buyer-specific pitfalls, and buyer-supplier interface pitfalls. We elaborate on each next.

Supplier-Specific Pitfalls

We found that six of the top ten pitfalls fell into the supplier-specific category. Failure to implement improvements stems chiefly from the suppliers' lack of commitment or lack of technical or human resources.

Lack of Supplier Commitment

In early meetings with a supplier's top managers, a buyer's team must clearly delineate potential rewards for the supplier organization; otherwise, supplier management may not be fully committed to the effort, unconvinced that development will benefit their organization. They may even agree to initial proposals but fail to implement them due to this insufficient dedication. The following are solutions companies have used to avoid this lack-of-commitment pitfall.

Show Them Where They Stand. Varity Perkins is a producer of diesel engines used in automotive and construction vehicles. Previously, Perkins sent suppliers a 100-point quarterly report that assessed their performance in the areas of quality, delivery, and price competitiveness. Perkins did not, however, use the data in any manner, and suppliers did not take the assessments seriously.

Perkins recently revised its supplier-evaluation system to show suppliers areas needing improvement. The new report shows a supplier's performance history in each area, its performance as compared to other Perkins suppliers, and its deviation-from-the-mean

performance. The report also includes graphs and other visual media. Perkins changed the metrics to reflect what it considers more important.

For example, to illustrate the impact of a supplier's performance on Perkins' daily operations, Perkins moved from weekly to daily delivery performance measurements. In one case, the *average* on-time performance for one supplier had ranged from 90 percent to 95 percent. However, daily measurements revealed that on-time performance dropped to 26 percent. Not long after implementing the new report, this supplier's daily on-time delivery rose to 90 percent.

Specific improvement targets become the primary measures for determining if the relationship will continue.

Tie the Business Relationship to Performance Improvement. Perkins' reporting system became the foundation for its supplier-development program, which concentrates on results. By allowing suppliers to view their performance relative to competitors' performance, Perkins expects suppliers to recognize the potential benefits of supplier development. However, if a supplier's performance does not improve, Perkins considers reducing orders from that supplier. Solectron is a contract manufacturer serving major original equipment manufacturers (OEMs) such as IBM, Hewlett-Packard, Sun Microsystems, and Cisco.

Solectron ensures that its suppliers know the criteria used to measure their performance and that they understand the level of performance required to maintain their business relationship. The specific improvement targets set in a supplier-development effort become the primary measures for determining whether the business relationship will continue. Solectron employs set measures used to gauge supply-chain excellence: reliability, mean time between failures, fulfillment lead time, just-in-time performance, schedule flexibility, commodity allocation, inventory risk reduction, and cost. When a supplier and Solectron cannot make progress on jointly developed improvement targets, Solectron either reduces or eliminates its business with that supplier.

Illustrate Benefits First-Hand. Varity Perkins' supplier-development efforts are closely integrated with "*kaizen* events" — focused shop-floor–based improvement projects designed to realize significant operational results in a short time at minimal expense. Perkins managers will not plan a kaizen event with a supplier unless the supplier is fully committed to the process. To gauge commitment, Perkins invites the supplier's managing director to one of Perkins' weekly internal kaizen events. If the director is enthusiastic after the event, Perkins arranges to hold a kaizen "awareness session" for the supplier's senior managers at the supplier's facility.

In general, commitment for supplier development at Perkins means: 1) the supplier is committed to continuous improvement, 2) both parties agree on cost-reduction targets, and 3) both identify specific opportunities for a kaizen event within the supplier's manufacturing process. Perkins asks the supplier to commit its workforce to the project — typically eight to ten operators for 1 week.

Perkins also will not run a supplier's first kaizen event until the supplier agrees on benefits sharing. Perkins no longer requires an equal split on savings, because true savings often cannot be determined for 6 months. Instead, Perkins requires that a supplier agree not to raise prices the following year unless it experiences an increase in raw material prices.

To foster supplier commitment, the teams generally choose a project that is fairly simple and likely to succeed for the first kaizen. Often, it is where they can obtain the "biggest quick fix" and the "greatest good." To illustrate the potential benefits, in one unusual case, Perkins actually performed a kaizen assessment on a competitor's area in a supplier's plant.

Honda of America Manufacturing uses another approach to garner supplier commitment by illustrating benefits: target pricing to identify cost-saving opportunities. Honda breaks down costs to the component level, then asks suppliers to provide a detailed breakdown of their costs, including raw materials, labor, tooling, packaging, delivery, and administration. By comparing cost breakdowns, Honda suggests ways suppliers can improve performance and thereby reduce costs. Honda jointly develops cost tables with suppliers and uses them to find differences (line item by line item) across all cost elements. Potential "bones of contention" are generally the supplier's profits and its overhead. Honda expects suppliers to receive a fair profit, of course, but the level may depend on

the size of the purchase; no fixed profit level is used in negotiations.

The purchasing department then aggregates the costs and compares them to the target cost. If total cost exceeds target cost, the design requires change to reduce the cost. Although the supplier's profit margins might be an easy place to look for cost savings, Honda realizes that doing so would squander any trust it may have earned. Therefore, Honda generally does not target supplier profits as an area for cost reduction.

Ensure Follow-Up through a Supplier Champion. Johnson Controls Inc. (JCI), an automotive interior components manufacturer in the United States, found that many suppliers attending its training sessions failed to implement the tools and techniques presented. Therefore, JCI initiated a Supplier Champions Program (SCP) to ensure that suppliers become proficient in areas important to JCI customers. In the SCP, one supplier employee is designated as the supplier champion. That champion's job is to understand JCI expectations, demonstrate an acceptable level of competence in the tools and techniques, and be capable of disseminating that knowledge to the rest of the organization. If a champion moves out of his or her role, the supplier must designate a new champion, who trains with the outgoing champion and becomes certified in the appropriate training sessions. Certification generally requires a champion to submit several improvements undertaken by the supplier, such as process-flow mapping, failure-mode-effects analysis, quality-control planning, best-practice benchmarking, or process auditing.

Insufficient Supplier Resources

Some suppliers lack the engineering resources, equipment, information systems, employee skills, or training required to implement the improvement ideas identified in a supplier-development exercise. To surmount this potential pitfall, many companies we studied invested significant effort in boosting their suppliers' infrastructures using the following techniques.

Keep Initial Improvements Simple. To minimize significant investments, Varity Perkins' initial supplier-development efforts focused on high-impact areas that could be improved quickly. Each kaizen effort was limited to 1 week, was constrained to moving only a specific number of machines, and generally involved only about eight machine operators. Because Perkins managers believe that optimal solutions are never reached in the first effort, they feel it is more important to perform a kaizen event quickly. Even though further improvements might be possible by allocating additional time and resources, spending significant funds on capital equipment is contradictory to the kaizen philosophy of striving for simple, effective, and low-cost solutions. Kaizen events lasting more than 1 week become production "reengineering" that might yield significant benefits. However, undertaking many small kaizen events often uncovers significant benefits without major resource commitments.

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Draw on the Buyer's Resources. Managers from National Computer Resources Corporation reported that timely and accurate information was critical to decision making and, ultimately, to improving supplier performance. Thus, an important focus of National Computer supplier-development efforts has been to persuade suppliers to commit to electronic data interchange (EDI — the electronic transmission of data between supplier and buyer using a strict format). National Computer has helped suppliers that produce lower-level components (but are without the resources to implement EDI themselves) by getting them online, providing training, and making hardware and software recommendations.

IBM managers reported in our interviews that, because of high risk and short product-development cycles, the company needed to expand its efforts to help suppliers ramp up for production more quickly. However, rather than use supplier-development intervention, IBM expedites support. For example, this means that it assists second-tier suppliers in reducing their delivery lead times to first-tier IBM suppliers. IBM even buys parts for first-tier suppliers and sells them to the suppliers at cost.

Solectron renegotiates contracts every 6 months because of rapidly changing technologies and a highly competitive environment, even though the firm considers suppliers long-term partners and they assume that their contract will be renewed. The renegotiation has two goals. One is to inform the suppliers of

BMW has sent maintenance engineers and procurement, logistics, and quality personnel to suppliers — sometimes for several weeks at a time.

probable order quantities 6 months in advance; the other is to garner price decreases from them.

Solectron plans to write price-adjustment clauses into these contracts to capture supplier cost decreases automatically during the contract period, rather than at the beginning of each new contract. However, the firm has not implemented this change, because suppliers' information systems are not integrated with Solectron's. Therefore, Solectron is considering providing suppliers with access to its databases. By doing so, Solectron will be able to forego frequent renegotiations and will expect to receive real-time price reductions from suppliers.

Offer Personnel Support. Bavarian Motor Works (BMW), the car manufacturer, does not provide financial support to suppliers; however, it has provided the services of its employees when suppliers request assistance. BMW has sent maintenance engineers and procurement, logistics, and quality personnel to suppliers — sometimes for several weeks at a time. During its initial start-up in the United States, BMW had to focus on problem-driven projects. It still relies on a Pareto-driven approach to assisting suppliers. It identifies problems early and prevents them from worsening, which minimizes expending a supplier's resources and the need for BMW to undertake supplier improvement efforts.

Hyundai Corporation, the large Korean automotive manufacturer, realized that smaller suppliers with limited resources could not consistently recruit and retain the most-skilled engineers. Therefore, most Hyundai kaizen processes focus on small suppliers. Hyundai sends engineers from its own shops to essentially "live" at supplier facilities, performing time/motion studies and teaching layout design to improve the supplier's productivity. Hyundai encourages these suppliers to learn, apply, and eventually teach their own suppliers the knowledge that Hyundai transfers to them.

Honda invested significant resources in its supplier-support infrastructure. Of the 310 people in Honda's purchasing department, fifty are engineers who work exclusively with suppliers. In one case, a small plastics supplier did not have the capacity to produce the required volume, so the quality of their parts began to deteriorate. Honda sent four people to the supplier for 10 months, at no charge to the supplier; additional services were even offered as needed. The supplier improved and became a well-established Honda supplier. Although engineering support has played a large role in the success of Honda's supplier-development program, the company generally does not invest directly in a supplier's equipment. In some cases, however, Honda will own a percentage of a supplier's equipment for capitalization purposes and allow the supplier to repay the investment over time.

Build Training Centers. To fulfill suppliers' training inadequacies, JCI built a facility dedicated to providing extensive training to internal groups, suppliers, and customers. JCI requires that all potential suppliers take JCI's Supplier Principles Program; hundreds of people have completed the program. During the first 11 months of 1997:

- Suppliers spent 765 hours at Principles Program classes at the JCI facility.
- JCI Supplier Development engineers spent 1,283 hours involved in management and process training at suppliers' facilities.
- Supplier-development personnel spent 573 hours solving technical problems at supplier sites.

Occasionally, a government may even lend support for industry collaboration. The cost of Hyundai's training center (which provides specialized supplier training) is shared evenly between Hyundai and suppliers, but the Korean government provides tax benefits for building such centers and makes the shared training fees tax-deductible. The Korean government prohibits significant investment by a company in its supply base, so Hyundai only directly invests in supplier improvement in rare circumstances. However, the company is permitted to make machinery and equipment that it manufactures available to suppliers at a good price, facilitating the exchange of advanced technology.

Buyer-Specified Pitfalls

Buyers are reluctant to fully commit to supplier development primarily when they see no obvious potential benefits. Small-quantity purchases from

Lofty expectations that go unrealized may reduce enthusiasm for future supplier-development efforts.

numerous suppliers may not justify the investment in one particular supplier. Or a supplier may not be important enough to justify such an investment. Lack of immediate monetary benefits or the wavering support of top management may also lower a buyer's commitment. Finally, lofty expectations that go unrealized may reduce enthusiasm for future supplier-development efforts. Following are some tactics for avoiding such buyer-centric pitfalls.

Consolidate to Fewer Suppliers. One way to illustrate the value of investing in a supplier-development effort is to consolidate to fewer suppliers, thus making the remaining few more important to the buyer's success. Several purchasing managers noted that one way to increase the order size with key suppliers is to standardize parts, even for "design-to-order" operations. For example, IBM's Networking Hardware Division, which produces customized networking solutions for customers, constantly strives to increase parts commonality. Currently, over 50 percent of purchased components for each major network hardware project is standard items. IBM personnel only order unique componentry when it will provide market advantage; otherwise, they standardize to leverage purchases worldwide.

Concurrent with the drive to standardized parts, many purchasing managers optimize their supply bases and use single suppliers to achieve economies of scale. For example, Daewoo Corporation uses single sourcing whenever possible. It only turns to two or more suppliers when labor disputes are likely. Similarly, National Computer, Doosan Corporation of Korea, Honda America Manufacturing, and Rover have made, or are planning, moves toward single sourcing within product platforms, while maintaining multiple sources across product lines. This strategy allows them to leverage purchasing volumes globally while simultaneously reducing the risk of insufficient supply. Reducing suppliers lowers administrative costs and provides the incentive to conduct supplier-development efforts with the fewer remaining suppliers.

Keep a Long-Term Focus. Solectron's competitive strategy relies heavily on its supply-chain-management competencies. Thus, Solectron looks beyond the price of the goods it purchases and examines how its most important suppliers impact the quality and technology of its own products. Solectron requires suppliers to provide "black box" designs that can be integrated into Solectron products by its designers. Solectron uses total cost and long-term strategic impact as criteria for justifying investments in its suppliers. Currently, Solectron is developing an integrated information system across suppliers, OEMs, and distributors, which it calls World-Wide Materials System. This system will allow commodity managers to better identify and justify supplier-development opportunities because it will help them better manage supplier-performance alignment, measurement, commodity team analysis, and supplier negotiations and reviews.

Determine Cost of Ownership. Many companies we studied use total-cost-of-ownership data to measure the cost of doing business with a particular supplier. For example, Sun Microsystems measures supplier performance in quality, lead time, delivery, flexibility, process and technology investments, and level of support provided to Sun. The total points achieved by a supplier across these categories is multiplied by a price index, which compares the supplier's performance to the price-reduction goals set by Sun. The best score a supplier can receive on the price index is 1.0. A total-cost-of-ownership final score of 1.36 implies that the supplier costs Sun $1.36 for every $1.00 worth of value Sun receives from that supplier. By identifying where and how suppliers add (or detract from) value, Sun makes supplier-development decisions on the basis of total cost rather than purchase volume or monetary value alone.

Set Small Goals. Varity Perkins' initial supplier-development efforts were relatively unsuccessful, partly because of unrealistic expectations. Thus, Perkins focused its kaizen improvement efforts on a smaller group of suppliers to garner a series of small wins. The effort was rewarded with incremental improvements that ultimately renewed the commitment of all parties. The goals for the supplier kaizen strategy were to:

- Highlight waste within a supplier's processes and demonstrate how incremental improvements could be made quickly through joint improvement activities.
- Achieve cost reductions at Perkins as a direct result of kaizen activities and share the benefits with the suppliers.

• Familiarize Perkins' purchasing, logistics, supplier quality assurance, and cost engineering staff with suppliers' products, processes, and training by having them participate in kaizen activities. This exposure then provided the basis for extending the improvement initiatives outside of kaizen.

Make Executive Commitment a Priority. Many of the managers we interviewed for this study reported that top management became convinced of the value of supplier development only when profits improved along with supplier performance. For companies such as Honda, which spends nearly 80 percent of cost of goods sold on purchased goods and services, such an argument is easy to make; for companies with lower percentages, the argument may be more difficult. Proving a specific relationship between supplier performance improvement and profits may not be easy; however, considering the total cost of *not* moving forward, there is a solid business case in terms of avoiding late deliveries, line shutdowns, and customer-warranty costs. Managers reported that optimizing their supply bases, together with parts standardization, freed up some resources over the long term and made supplier development more feasible. In addition, taking the total-cost approach to measuring supplier performance proved effective in demonstrating the cost of poor supplier performance. Thus, many of the strategies used by companies to avoid their own buyer-specific pitfalls to supplier development are complementary.

Buyer-Supplier Interface Pitfalls

Pitfalls may also originate in the interface between buyers and suppliers, in areas such as interorganizational trust, alignment of organizational cultures, and ineffective communication of potential benefits.

Lack of Trust

One of the biggest challenges in supplier development is cultivating mutual trust. Suppliers may be reluctant to share information on costs and processes; the need to release sensitive and confidential information may compound this hesitation. Ambiguous or intimidating legal issues and ineffective lines of communication also may inhibit the trust building necessary for a successful supplier-development effort.

Delegate an Ombudsman. To overcome suppliers' reluctance to share information, Honda has supplier ombudsmen who deal with the "soft side of the business" — the human resource issues that are not associated with cost, quality, or delivery. Honda has discovered that often suppliers are more open with these ombudsmen because they are not involved in the contract negotiations. If a supplier approaches an ombudsman with a problem caused by poor communication or misunderstanding between the two companies, the ombudsman is able to communicate the supplier's perspective to Honda's personnel while maintaining confidentiality as much as possible. Over time, suppliers come to trust the ombudsmen and appear more willing to share information in all areas, including costs — a sensitive area.

Often suppliers are more open with ombudsmen because they are not involved in the contract negotiations.

Keep Confidential Information Exclusive. Sharing confidential information is especially difficult when dealing with new suppliers in high-technology areas. Thus, many companies require nondisclosure agreements and even exclusivity agreements (i.e., the supplier provides a specific product only to one buyer), especially when dealing with technologically advanced products that contribute to the buyer's competitive edge. Motorola, for example, has made confidentiality a part of its supplier-development agenda. The company even helps suppliers segregate Motorola product manufacturing from their other operations to prevent Motorola's competitors from seeing how these parts are manufactured.

Spell It Out. Since it does not plan a kaizen event unless a supplier fully commits to a relationship, Varity Perkins first insists on a signed agreement. Although some procurement staff at Perkins prefer a "gentleman's agreement," kaizen leaders believe the only way to gain a supplier's trust is through written and signed terms, especially for the first few kaizen events. Perkins recently spent 8 months trying to convince a key supplier to consider a kaizen; the supplier's managers were reluctant because another company's recent kaizen failed to yield significant improvements. The lack of trust was compounded by Perkins' reputation for "arm's length" relationships with suppliers, which manifested in Perkins frequently switching suppliers on the basis of price. Perkins is now aggressively trying to reverse this perception through

its new purchasing philosophy, which emphasizes cooperative relationships with key suppliers and well-defined purchasing objectives beyond purchase price.

Minimize Legal Involvement. JCI views suppliers as extensions of its company. The company forms alliances with key suppliers and develops close relationships between the two firms' senior executives. Alliance agreements include broad statements of operating principles and specify the roles each party should play, so formal contracts are rarely used. Instead, open purchase orders are employed on 90 percent of orders, and JCI commits to a certain volume of business. In interviews, the JCI team emphasized that they use only a single legal adviser to establish these relationships, and their contracts are written only for a "supply agreement" — a memorandum that outlines general expectations and commitments. The only legal issues involve patent and intellectual-property agreements. So an important underlying success factor distinguishing JCI from its competitors is its continual emphasis in its corporate culture on its relationship-based strategy. JCI's purchasing mission statement states:

"Purchasing will provide products and services of the highest caliber . . . . To achieve these results we will work in a relationship-building environment that focuses on the value chain through target cost savings, full-service suppliers, and innovative supply-management practices. Collaborative relationships are vital to the success of JCI. To build and preserve our internal and external relationships, we will maintain impeccable moral and ethical standards in an aggressive, professional environment. We embrace proactive activities that ensure predictable results of the highest measure in product quality, cost, and delivery on a global basis."

Poor Alignment of Organizational Cultures

Occasionally, when conditions change, a once-successful supplier-development approach is no longer viable. Changes in supply chains or plant locations, or ambiguous expectations that do not take into account changing conditions, may adversely affect supplier development.

Adapt to Local Conditions. When setting up production in South Carolina, BMW quickly realized it would have to change its supplier-development approach to conform to North American supply conditions. In Germany, BMW uses a "process consulting" approach, analyzing suppliers' processes for errors and insufficiencies. This approach works well in a mature supplier relationship, in which the supplier intuitively understands what the customer wants because the parties have worked together for many years. In the United States, however, BMW's new U.S. suppliers had difficulty understanding BMW's requirements for quality and continuous improvement; this misunderstanding resulted occasionally in strained relationships. Consequently, BMW spent a great deal of time communicating with suppliers and showing them what BMW needed. Further, BMW had to change the message it sent to suppliers by emphasizing "Your problems are our problems. You have good products, but you have to do better, and we are here to help you."

BMW also found that, although a given supplier might be considered excellent in Europe, the supplier's subsidiary in the North America might be incapable of meeting the same standards. For example, bumpers and body panels initially purchased in the United States often had small scratches and other minor imperfections that BMW considered defects. In setting expectations, BMW emphasized that it was not just a matter of "right versus wrong," but a matter of effectively communicating quality criteria. Thus, BMW asked the suppliers to hold parts at certain angles under a light to look for scratches. For suppliers to understand these expectations and to align their business cultures with BMW's required face-to-face discussions with BMW.

Create an Expectations Road Map. BMW strives to be 20 percent above the industry average in several quality-performance categories; management believes supplier development is a key contributor in this effort. One of the best ways to achieve this level of quality is to communicate BMW's expectations effectively. Thus, BMW recently published a Supplier Partnership Manual and held seminars for suppliers to present their "Road Map to Quality." This manual clearly delineates supplier responsibilities and expectations and is geared toward improving alignment between the corporate cultures.

Such road maps are an increasingly common way to spur buyer/supplier organizational alignment. They attempt to show companies where they are today and project where they should be in the short, medium, and long term. IBM's networking hardware division and personal computer operations share road maps with suppliers. Similarly, Sun Microsystems shares road maps with suppliers to drive their invest-

Establishing metrics and timelines that provide a basis for follow-up and joint problem solving is critical to a project's completion.

ment strategies, which will, in turn, drive Sun's supplier selection strategy. The alignment of a supplier's technology and Sun's technological needs are the basis for "guaranteed" future business with Sun.

Insufficient Inducements to the Supplier

Buyers may ineffectively communicate potential benefits for investing in supplier-development efforts, thus losing a supplier's full commitment. It may be necessary to convey more motivating incentives.

Offer Financial Incentives. Hyundai Motor Company uses financial incentives to motivate suppliers to improve. The company rates supplier performance from 1 (highest) to 4 (lowest). Class 1 suppliers are paid in cash, Class 2 suppliers are paid net 30 days, Class 3 suppliers are paid net 60 days, and Class 4 suppliers are paid net 60 days and receive no new business. Because suppliers know how Honda evaluates performance, they take steps to ensure high levels of performance. This motivator has been especially important during the recent financial crisis facing Asian industries.

"Design In" Motivation. Although Solectron is now generally able to offer large orders to suppliers, this was not always the case. To gain supplier cooperation in the "low-volume years," Solectron emphasized that a supplier could become "designed in" to its products and thus have a greater potential for future business. Designing a supplier's product into a Solectron product provides enough motivation for most suppliers to participate in supplier-development efforts. Soletron still uses this approach as a motivational incentive.

Offer Repeat Business as an Incentive. Several companies interviewed were surprised to hear that a lack of special inducements was a pitfall to supplier performance improvement. For example, JCI managers believe that properly managed relationships require no explicit rewards or incentives for suppliers to improve their performance. JCI noted that its suppliers are not promised anything, but they expect contract renewal. If a supplier meets JCI expectations, it will continue to be a JCI supplier.

Lessons Learned

Although we gained many valuable insights while conducting this study, we summarize several that are particularly relevant to this discussion.

Most Pitfalls Occurred in Steps 4–7 of the Process Model. If we were to view the major pitfalls in terms of stages of the process model, we would see that significant problems often arise:

- during meetings of buyer and supplier management teams,
- when defining key projects,
- when defining agreement terms and determining metrics for success, and
- when monitoring project status and subsequently modifying strategies.

Thus, to avoid these pitfalls, the parties should openly address initial doubts and resolve the issues as soon as possible. Target projects that are too complex result in poor follow-through, either due to lack of resources or lack of commitment; firms must address this problem early. Furthermore, a buyer that does not commit sufficient resources for its proposed development effort is unlikely to convince supplier top management. So buyers must understand, support, and make clear their side of the bargain early on. Determining which costs to bear and which to share is also important. Finally, establishing metrics and timelines that provide a basis for follow-up and joint problem solving is critical to a project's completion. Confronting such difficult topics promptly can highlight the weaknesses in a poorly planned development project.

Unsupportive Managers Are a Common Pitfall. Many of the interviewed managers stated that suppliers are sometimes unwilling to accept help in the form of supplier development. Perhaps they are too proud. Perhaps they do not see the value in improving quality or delivery performance. Or perhaps they do not recognize they have a problem. Acknowledging that unsupportive managers are a potential pitfall, buyers can devise remedies, perhaps based on our findings, which provide the greatest overall benefits. Manage-

ment attitudes significantly affect the success of a supplier-development effort, so they must be monitored and addressed continually.

Strategic Emphasis Is Required on Purchasing and Supply-Chain Management. A strong purchasing mission statement reflects and drives strategic emphasis and alignment. Consider the purchasing mission statement of a U.K. auto parts manufacturer: "We are committed to procure goods and services in a way that delivers our aims and objectives of becoming the most successful auto parts business in the world." This company pursues its mission through: (1) developing a world-class supplier base capable of meeting current and future needs; (2) obtaining the highest quality, most cost-effective goods and services in a timely manner; and (3) establishing long-term relationships with supply partners that meet company standards, are committed to the manufacturer, and strive to continually improve in all areas. A strong supplier-development effort leads to improved strategic alignment between organizations and results in important transfers of tacit expertise and advanced technology.

Pitfalls May Be Related. A theme that underlies the findings in our survey and field interviews is that as companies work toward solving one supplier-development problem, they may concurrently progress toward avoiding other pitfalls. Although pitfalls may not correlate with each other in every case, it became increasingly clear during the field interviews that experiencing the pitfalls of one category (supplier, buyer, or interface) frequently had direct or indirect effects that led to other pitfalls as well.[8]

Relationship Management Is Critical to Success. Use of specific tools and processes (such as total-cost analysis, volume leveraging, resource support, formal and informal communication, linked information systems, incentives, and agreement on goals and objectives), can develop and strengthen relationships between buyers and their suppliers.

Initiating supplier-performance improvement is not an easy task. The objective is to transform suppliers so that continuous improvement becomes an integral part of their capabilities. Our findings suggest that such an accomplishment takes time and is only achieved by patient relationship managers who are tenacious enough to pay follow-up visits to suppliers and continually enforce a strong program of supplier evaluation and performance feedback.

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