

Toward Effective Supplier Management: International Comparisons

Roy D. Shapiro

The purchasing function is acquiring high priority in the eyes of senior management for a number of reasons. First, increasingly global strategies for marketing and manufacturing require equally global approaches to sourcing. The skills and knowledge required for effective worldwide sourcing are quite different from those typically found in a domestic purchasing organization. Furthermore, in a global company, purchasing plays a far greater role in gaining and maintaining competitive advantage, particularly in industries whose products evolve rapidly.

Another trend that is contributing to the growing importance of purchasing is the gradual decline in the percentage of value added by manufacturing firms. Today, the average cost of purchased materials, components, and services across all U.S. manufacturing concerns is more than 60 percent of the total cost of operations, as compared to 50 percent in 1965 and 40 percent in 1945. (Unfortunately, although this increase in cost as a percentage of value has certainly focused management's attention on purchased materials, it has only increased the short-term cost-consciousness of many purchasing organizations, often to the detriment of their firms.)

Finally, U.S. managers are recognizing that the success of many of their global competitors rests on superior products. The role of a firm's procurement improvement is quite evident.

This article describes three distinct models of supplier management, based on my observations of firms in the United States, Western Europe, and Japan during the last several years. For each procurement mode, I describe prevailing policies and practices, the benefits that accrue to the firm using it, the risks it entails, and the particular knowledge base required for its effective use.

The Traditional Adversarial Approach

The adversarial model is most often associated with traditional American purchasing organizations and, indeed, is still the dominant mode in the West. The primary objective of purchasers operating in this mode is to minimize the invoice prices of purchased goods and services, most often by:

- Maintaining a large vendor base, both to ensure supply continuity and to increase buyer leverage while limiting supplier power
- Making frequent shifts in the mix of suppliers, often as „discipline“
- Building arms-length relationships and using formal, often short-term contracts subject to frequent rebidding, with suppliers chosen largely on the basis of price

At its extreme, this price-based approach works as if all purchased items are commodities, undifferentiated except on the basis of price, and available, supposedly without difficulty, on an open market. The purchasing organization in this model is rather insular. Interaction with other functions, particularly engineering and R&D, is limited and often adversarial. Design specifications spell out in detail exact physical characteristics, materials, and method of manufacture. Suppliers have little or no input into these specifications, and are not expected, nor allowed, to make changes in them. This practice persists today despite abundant experience with buyers' incurring great expense for their firms by writing specifications insignificantly different from industry standards.

The concept of value analysis is well understood in purchasing circles, but it is often applied after rather than at the design stage. More important, value analysis is often an in-house process (for some firms, the rare collaboration of Purchasing and Engineering), without supplier involvement. At best, the supplier is contacted only after the value analysis team has generated several alternative design changes to investigate. In contrast, world-class organizations understand the benefits of bringing suppliers into the design process rather than „value engineering“ better designs years after the product has been introduced to the market.

Although there is evidence that the adversarial model does indeed lead to reductions in the invoice prices of purchased items, it usually leads to higher-than-necessary total manufacturing costs – for a number of reasons. Problems with incoming quality or delivery reliability necessitate expensive component inventories. Frequent changes in supplier mix discourage loyalty, which can increase the risk of supply interruptions. Most important, there is little incentive for supplier innovation, unless it directly reduces the item's price with little change to the specifications. Even then, suppliers report that they may hold back the innovation until the next round of bidding.

My interviews with American suppliers have uncovered, not surprisingly, real bitterness toward the most adversarial of their customers. For example, these suppliers view with almost uniform apprehension the prospect of „just-in-time“ delivery programs. They are convinced that such programs will cause their costs to increase –

with no additional compensation.

In the past several years, American firms have observed that much of the success of their world-class competitors rests on attention to incoming quality and rapid, reliable delivery of purchased items, rather than a narrow preoccupation with prices.

In response, some Western firms have begun to move away from the traditional price-based model. All too often, however, they succeed merely in replacing low price as the criterion for vendor performance with a set of new criteria (e.g., quality, delivery dependability), without any other change in the purchasing organization, its interrelationships with other functions, its policies, or the fundamental adversarial nature of the firm's relationships with suppliers. The old adversarial model has simply been replaced by a new adversarial model. Rather than pitting suppliers against each other to beat down prices, this approach pits them against each other on different dimensions, promising, as before, lower (or no) volumes to suppliers who do not quickly fall into line.

A few years ago, an American car maker, seeking to improve its quality, sent the following memo to many of its suppliers:

Effective immediately, it is the policy of all divisions of the corporation to reject in its entirety any shipment received that contains even one item with any error.

Whether or not suppliers believe that this threat would be carried out, it clearly represented a continuation of the adversarial relationship – using fear to achieve quality rather than seeking to help suppliers improve their operations to make defects less likely. One vendor I interviewed responded simply by reinspecting the goods, removing the defects, and returning the shipment. The final goods were handled four times, inspected three times, and transported twice. Ultimately, of course, the buyer will have to bear the excess costs.

Vendor as Co-Maker: The Japanese Model

The buyer-supplier partnership model, made famous by a number of successful Japanese companies, rests on a long-term mutual dependency between a buyer and suppliers who can guarantee high quality and fast, reliable delivery. The aim of firms operating in this mode is to produce defect-free products and to minimize total manufacturing costs.

Note that „mutual dependency,“ as used above, is seen as beneficial by companies that operate in this mode, in contrast to the dominant American view that purchases by any one customer must not constitute more than 10 to 20 percent of a supplier's sales. Not only do most large Japanese firms have fewer suppliers than their American counterparts, but most suppliers have fewer customers. It is common for one or two customers to account for the vast majority of a small supplier's sales.

As practiced in Japan and by the world-class Western companies that have adopted this model, procurement policies are characterized by:

- Long-term relationships with relatively few suppliers (I found true single sourcing to be rare, although Japanese companies that I studied seldom had more than two or three suppliers for any given item)
- Close interaction between manufacturing, engineering, and design personnel of both buyer and supplier firms, with suppliers given not only the option of, but the responsibility for, helping to design components
- Supplier proximity, both to allow rapid, often „just-in-time“ delivery and, perhaps more important, to facilitate the close relationships referred to above
- Blanket contracts, with order releases often verbally communicated (no paper trail), especially to small suppliers
- Buyer financing of raw material inventory and equipment, and sharing of responsibility for the cost of excess inventory caused by deviations of the buyer's actual orders from those forecasted

In Japan, although new components are typically released for bid, the frequent rebidding common in the United States is unusual. This policy, along with others that rely on the stability of the buyer's relationship with a small number of suppliers, leads to administrative costs related to day-to-day procurement that are 30 to 40 percent lower than in comparable American firms.

However, my interviews with Japanese suppliers showed another side to the picture. One reason that their large customers can run such efficient operations is that small suppliers absorb the shocks that might otherwise disrupt their customers' production. For example, suppliers produce the short-life-cycle parts and perform the most labor-intensive work. Wage rates for the smallest suppliers are close to half those that prevail in the larger companies. And suppliers absorb fluctuations due to downturns or scheduling „blips.“ (The smaller suppliers rarely offer their employees lifetime employment. They depend more than their clients do on „temporary“

workers, often women or unpaid family members. When demand drops, the larger firms avoid some of the otherwise necessary work force fluctuation by sending less work down to their suppliers.)

Furthermore, my observations suggest that buyer-seller interactions in Japan are not always as friendly as the popular press would lead one to believe. Nonetheless, Japanese suppliers express confidence that when problems arise they will be resolved equitably for both sides. Most Japanese suppliers feel adequately compensated for the services they provide. The compensation is not necessarily included in invoice prices, but can be measured in terms of long-term relationships that are carefully nurtured by large buyers, larger volumes from fewer customers, engineering and financial support, risk-sharing, and – very important within Japan's social system – the pride that accrues to the supplier in being considered part of the buyer's „family.“

Purchasing as a Conduit for Innovation

The driving force behind this third mode of procurement is the desire to take advantage of the best design concepts and technological expertise available worldwide. The managers of firms that operate this way recognize that this expertise often resides outside the boundaries of their firms. They realize that suppliers often understand the potential of supplied technologies, even in application to the buyer's needs, better than the buyer does. Thus, these organizations involve their suppliers heavily in the design and engineering of new products.

My observations indicate that several European firms are especially adept at operating in this mode. These firms compete on the basis of innovation, seeking competitive success in the world market through better (higher-performance) products. And, while there are similarities in the procurement policies of the most effective European and Japanese companies, the differences are striking. Whereas the Japanese industrial giants work with suppliers that are almost always nearby, successful Western European firms compete by seeking out suppliers at the leading edge of technology worldwide and establishing special rapport with them.

This procurement mode differs from those described above in its fundamentally external focus. The adversarial purchaser rarely looks beyond its own corporate boundaries. The typical Japanese purchaser operates by incorporating outside makers into its corporate „family.“ European purchasers who seek suppliers that can innovate have, by necessity, a global view. These firms often have limited resources for both development and vertical integration, as well as limited local suppliers with the required skills. Volvo, for example, sources 70 percent of its purchased materials and components outside Sweden. In contrast, Toyota sources less than 10 percent of its purchases outside Japan. Most European firms are adept at managing flows across national borders. For some, it has long been a matter of survival.

These firms not only seek out but, where possible, develop leading-edge technologies at the supplier level. This development can take the form of joint ventures or simply financial contributions to a supplier's R&D effort. Nearly two-thirds of Olivetti's R&D expenditures are spent outside the firm. Such arrangements require extensive technical knowledge within the purchasing organization. The purchasing staff must be competent not only to evaluate a current supplier's capabilities, but, more fundamentally, to stay in touch with technological developments worldwide.

The critical challenge presented by this mode of procurement is the risk of losing control of key technologies that have been developed outside the firm. Managers I spoke to had spent much time trying to generate creative approaches to preventing competitors from acquiring the innovations that their suppliers had developed.

Information and Intelligence

Each of the models of purchasing described above requires its own type of knowledge and skills. My interviews suggest five types of supplier-related „intelligence“: commodity cost, process economics, process capability, technology, and business.

Commodity cost intelligence is the goal of the adversarial purchaser of (assumed to be) undifferentiated products or basic raw materials – a thorough knowledge of the economics of the „commodity.“ At best, such intelligence would be based on a detailed information system that could track raw material prices and predict the prices of derivative products.

Process economics intelligence includes, in addition to commodity cost knowledge, a thorough understanding of the economics of one's suppliers' manufacturing facilities and processes. The objective is to be able to predict closely the supplier's costs so as to negotiate prices downward. While this knowledge can certainly be valuable for the adversarial purchaser who negotiates at arm's length, it is most effective for the buyer who is willing to help suppliers improve their cost structures so that they can pass on some of their savings in the form of reduced prices.

Process capability intelligence is a natural extension of process economic intelligence for the buyer who seeks to use suppliers' design and technological expertise to capture innovation. In this approach, knowledge of the capabilities of the suppliers' technology and design staff become paramount. Two-way information flow is

important, for not only does the buyer require knowledge of the supplier's technology (as well as cost structure), but the supplier must be made aware of the capabilities and limitations of the buyer's processes. For the buyer who brings suppliers in at the start of the design process, this two-way flow is essential.

Technology intelligence is a further extension. Whereas process capability intelligence focuses on the capabilities of current suppliers, technology intelligence is based on a continuous quest for new sources of leading-edge technology, even in areas not previously applied to the buyer's business. For an organization to possess technology intelligence, it must stay abreast of relevant technological development and likely future substitutes for current products and processes. This is the model pursued by the most effective manufacturers I studied. Several have created „purchasing research“ organizations whose explicit role is to keep a finger on the pulse of new technology worldwide, as well as to keep abreast of suppliers' development of new technologies.

Note the implicitly different assumptions of organizations tuned to each type of knowledge. Purchasers of the first type assume that the technology of production is such that there is little variance in the costs of manufacture because the methods of manufacture are well understood by the supplier industry. Specifications are assumed to be uniform within each „commodity.“ In other words, both product and process are assumed fixed. The purchasing task is thus one of negotiating price and monitoring compliance.

The implicit assumption held by purchasers of the second type is that the *methods* of manufacture are less well understood in the industry, or that current suppliers are operating below the level of efficiency that current knowledge might allow. There is, thus, the potential to improve the methods used and reduce cost to the benefit of the buyer (and, among less adversarial purchasers, for the seller also). Here the product is assumed fixed, but the process may vary.

Purchasers of the third kind recognize the close linkage between product and process and understand that there is some latitude in the technical specification of the product. The task here is to identify the product-process combination that gives the best value-to-cost ratio. These purchasers see both product and process as variable.

Purchasers seeking technology intelligence believe not only that the product and the processes that could be used for the manufacture of that product are variable, but that radically different substitutes could evolve from new technologies that are not yet fully understood. Moreover, these substitutes might arise in firms with which the buyer does not traditionally deal.

Business intelligence goes beyond the technological focus to capture relevant financial and competitive information about suppliers' businesses. In a global context, this approach includes an understanding of foreign cultures, politics, trade barriers, and the impacts of other government restrictions and incentives. Without business intelligence, procurement activities would seem to be based on an implicit assumption that the economic, political, and competitive environment is fixed. Organizations that seek business intelligence recognize the dynamism of that environment. Their objective is to assess the long-term competitive position of suppliers and to be cognizant of future changes in the structure of those suppliers' industries. This approach ensures the selection of suppliers with long-term viability. It also encourages action on the part of the buyer to help promote competitive health for its suppliers. This interaction is at the heart of long-term buyer-supplier relationships.

Conclusion

Management scholars argue that one of the reasons some U.S. firms have slipped competitively relative to their European and Japanese counterparts is that they have not invested in, nor nurtured, their capability for in-house innovation, particularly process innovation. My observations indicate that another reason for the failure of those firms to remain globally competitive is their inattention to effective buyer-supplier relationships. Thus, they have weakened themselves on two fronts. No firm can hope to develop all important new technologies in-house. A firm's competitive position depends on its ability to manage its suppliers effectively – first, to encourage their innovative activities, and second, to allow those innovations to flow into the buying firm's products.

As technological specialization within the logistics pipeline continues, it is imperative that firms develop the ability to manage their suppliers so as to effect vital transfers of technology. As I have indicated, this effort requires policies, people, and interactions that are substantially different from those common in the traditional adversarial model still employed by many U.S. firms. Purchasing is no longer a clerical activity meant to implement the decisions of others; in many cases, it is critical to the survival of the firm.

Roy D. Shapiro, a professor of business administration at the Harvard University Graduate School of Business Administration, is faculty chairman for the required first-year MBA course in production and operations management. Professor Shapiro's primary research and teaching interests are in the areas of production and operations management, logistics, and supplier management.