

Supply Chain Management

James A. Welch and N. Laddie Cook

Chief procurement and logistics executives from 12 influential companies – representing combined revenues of some \$360 billion – met at the Arthur D. Little Colloquium on Supply Chain Management. They rubbed shoulders, shared insights, and „pushed the envelope“ of the state of the art in this field.

Why the Supply Chain?

The supply chain can be a source of tremendous competitive advantage. As A.K. (Ken) Pattin, Vice President, Worldwide Supply and Acquisition Management of the IBM PC Company, told another colloquium participant, „Supply chain issues will make or break“ competitiveness.

For companies such as those represented at the colloquium, 50 to 80 percent of their cost structure is attributable to purchased inputs. „At Honda,“ said David Nelson, Vice President, Purchasing, Honda of America Manufacturing, Inc., „Eighty percent of the total manufacturing cost of the car is purchased product. Consequently, Purchasing at Honda is the keeper of the costs, and management keeps its eye on Purchasing. First, we decide what the car will sell for. Second, we see what the car will cost us to produce. Third, we try to do it. The last Accord actually came in \$200 under projection; therefore, we had no price increase. So, you see, Purchasing is central to Honda.“

The companies represented at the colloquium agreed that the supply chain holds the key to unlocking a wealth of opportunity. For example, Harry M. Goern, Vice President, Procurement and Transportation, Alcoa, explained that one of Alcoa’s motivations for reengineering its supply chain was the discovery that 60 percent of its purchasing happened outside its procurement department. The company had no way of optimizing these purchases across the corporation, or even of finding out how close to optimization it was.

Conceptual Versus Managerial Mindsets

In the beginning hours of the colloquium, a tug-of-war developed between two mindsets: „conceptual“ and „managerial“ – i.e., individuals and companies who tend to reflect continually on their supply chain activities and „push the envelope“ in terms of new understandings and longer-term possibilities and those who tend to focus on immediate requirements and possibilities. For example, the former regard Purchasing as among their most strategic functions, while the latter generally evaluate Purchasing’s performance only in terms of its ability to minimize administrative costs. This tension between conceptual and managerial outlooks is real and merits attention. To advance the state of the art in supply chain management, participants had first to acknowledge this chasm and then to focus the group’s energies on how best to bridge the gap.

Defining the Supply Chain

The Conceptual Definition. Conceptually, the supply chain extends from „dirt to dirt.“ It begins when raw materials are extracted from the earth and ends when the product is reclaimed, recycled, or disposed of and returned to the earth. It includes all the operations, entities, and enterprises in between, including:

- Suppliers at every level
- Procurement/purchasing/buying
- Design/manufacturing/assembly (logistics aspects)
- Warehousing
- Logistics
- Customer order fulfillment
- Distribution
- Paying suppliers (accounts payable)
- Customer use
- Post-consumer cycle (recycling, reuse, disposal)

To regard the supply chain any less broadly is to deprive a company of the potential synergies within it. Only the broadest, most holistic and systemic perspective will enable companies to harness the energy in the supply chain and eradicate the waste and inefficiency.

The Managerial Definition. However, a manager making day-to-day decisions may need a more pragmatic definition in order to subdivide or „scope“ the supply chain in such a way that it can be understood, communicated, monitored, and ultimately managed. From such a manager’s point of view, the conceptual

definition of the supply chain is impossible to achieve because of insurmountable barriers such as functional „chimneys,“ geographical issues, imperfect information, and, of course, antitrust legislation.

Bridging the Gap. Companies that subscribe to these different definitions behave differently. For example, companies that use the conceptual definition of the supply chain truly consider their key suppliers to be integral to their supply chain and rely on them in the earliest possible stages of product development and design, leveraging the suppliers' capabilities while sharing with them overall business objectives and desired outcomes. In contrast, firms that use the managerial definition tend to rely on „purchase price savings“ as a management lever to help meet annual budgets. But purchase price savings pertain only to the initial purchase price. Therefore, although this practice may help meet budgets in the short term, it encourages behavior that will likely drive up life-cycle costs in the long term.

From Arthur D. Little's perspective, the leading companies in supply chain management are those that have managed to merge the conceptual and managerial viewpoints into one common paradigm that is shared by all the key stakeholders in the supply chain. Such companies keep the conceptual vision firmly in mind. They frequently hold it up as a standard by which to assess managerial thinking and to fend off spasms of parochialism or myopia. The tension between the two definitions is constructive; it stimulates clear thinking. Every time you score analytically and practically by applying an insight based on the conceptual outlook, you move a step closer to truly optimizing the behavior of the supply chain.

Strategic Supply Chain Management

Perhaps the single most important best practice shared at the colloquium pertains to how the supply chain is viewed by management and by the corporation. In order to gain a strategic advantage from the supply chain, management must regard it as a fundamental strategic factor.

Dave Nelson of Honda told an enlightening story about the strategic image of Purchasing. Prior to joining Honda, Nelson was at a diversified, multidivision U.S. firm: „I was involved in different functions before I became involved in Purchasing, sort of by accident, I began evaluating Purchasing functions [at this firm's various plants and divisions] and made recommendations on how to improve them. In the end, not a hell of a lot happened. Then I went to Honda and discovered that Honda's capabilities in Purchasing were 10 times better. And Toyota's are probably better than that. One of the reasons is the people. At Honda, we have eight people running the company. Half of them have been in Purchasing. They understand the importance of Purchasing.“

While some companies still ignore Purchasing, leading companies increasingly see it as central to the way they do business – in Nelson's concept, a core strategic weapon.

The Management Challenge. But managing that strategic weapon appropriately is another issue. The colloquium participants all shared the perception that Purchasing's strategic role is underappreciated or misunderstood within their respective companies. As Peter J. Deschenes, AT&T's Procurement Director, American Region, put it, „Purchasing is the Rodney Dangerfield of corporate culture.“ John S. Raydo, TWA's Staff Vice President, Purchasing and Contracts, gave a reinforcing perspective. Raydo is a relative newcomer to the world of supply chain management and, as such, brings something of an outsider's eye to the role. Considered a troubleshooter within TWA, he was brought into the procurement process when TWA was emerging from bankruptcy.

„I used to see Purchasing as a dull, repetitive, [sideline] department,“ Raydo confessed. „I mean, every company has a division it sees as central, that gives the company its personality. In the airline business, it's Flight Operations. The companies were, after all, started by pilots. In the automotive industry, the central division is probably [Product] Engineering. I don't think there are too many companies where Purchasing is seen as central.

„Anyway, I'm probably not doing anything differently than my predecessors, who, I discovered, were actually doing a good job. But they were off to the side. They weren't invited to meetings. In contrast, because I'm not perceived as 'only someone from Purchasing,' I can talk – and I want to talk – to the VPs in the other divisions of the company. And when I do, people begin to see Purchasing in a different light – as an active, involved part of the business.“

Getting „Strategic.“ „You know,“ said Andrew F. Icken, Manager, Materials and Services Department, Exxon Company U.S.A., „all too often we say, 'If only senior management knew what we're doing.' What we really need to do is stop whining about Purchasing's lack of credibility with senior management and develop performance measures that we, as the professionals in the business, are satisfied with.“

The problem, as Icken presented it, is that procurement is too often perceived by senior management as a dull, repetitive function. And, most crucially for the assembled executives, its only satisfactory performance measure is dollars saved – an attitude that is often viewed by the procurement department's internal customers as self-serving. Those internal customers, Icken pointed out, are not solely concerned with saving money. They also want to know: Did the widget show up on time? Does it work? And external customers, of course, do not care at

all about cost to the company.

The goal, said Icken, is to make the internal customer understand that procurement is a strategic as well as a tactical part of the business endeavor. To do that, he suggests, procurement and logistics departments must benchmark themselves, balance cost with flexibility, and figure out how to measure their bottom line – i.e., how the corporation's P&L is affected by the procurement department's efforts, both in snapshots and over time.

R. Gene Richter, Executive Director, Corporate Procurement, of Hewlett-Packard, offered these considerations for procurement and logistics executives who are looking to „get strategic“: If the supply chain is performing better than last year, performance may still be terrible. „Forty percent better than disaster may still be unacceptable. You can't set internal goals in isolation,“ continued Richter. „You have to measure yourself by the same criteria you use to measure your suppliers. *And* your suppliers' improvements in price, quality, delivery, etc., must be measured against the improvement your competitors' suppliers are providing them.“

Peter Peck, Vice President, Central Logistics and Asset Management at Xerox Corporation, reinforced the message: Saving money for the company is a sterile goal if it becomes an end in itself. „We want the customer's measure,“ Peck said, „not an internal measure.“ The conclusion here is that supply chain managers should relate achievements to today's bottom line and today's best appraisal of relative competitive advantage – convincingly.

„If my suppliers deliver 90 percent on time and my competitor's suppliers deliver 100 percent,“ said Richter, „then we stink. If I get 60 percent on-time delivery and my competition gets 20 percent on-time delivery, that's fine.“ Honda's Dave Nelson interjected, „If a supplier delivers 99 percent, we drop him. And we never drop anybody.“

In order for supply chain managers to claim that the supply chain functions as a strategic force, they must have tangible, even quantitative, ways of relating its performance to that of the larger organization it serves. The best practices synthesized at the colloquium include:

- Relating internal supply chain performance measures to one another – and linking them to corporate objectives and competitive advantage
- Evaluating the performance of the supply chain – and the managers of it – by measuring results in the supply chain and comparing these with the performance of competitors' supply chains

Partnerships and Supplier Relations

Many best-practice firms see supplier partnerships as one way to sustain competitive advantage. But such partnerships raise a number of issues that have not been resolved to everyone's satisfaction.

Benefiting the Competition. The projects and programs undertaken with suppliers inevitably make the suppliers more competitive, and they likely use these results to get more business from their other customers. This means that by helping suppliers, leading companies are also benefiting their competitors. Best-practice firms accept this outcome as a cost of doing business. Leading companies that create partnerships believe they are so far ahead of their competition that they don't need to be concerned about the competition's catching them on the basis of supplier-conveyed transferences alone.

Sustaining Trust. Taking on a supplier as a partner requires a lot of trust. In practice, it is very rare for a supplier, once selected as a partner to a leading company, to fail to meet that customer-partner's needs. Both the supplier and the customer-partner must work very hard to keep complacency from setting in and to reduce the chances of failure.

Supporting Your Suppliers. According to Nelson, Honda trains and nurtures its suppliers. Their problems, their concerns, are Honda's problems and concerns. „For Honda,“ Nelson said, „partnership is forever. Our suppliers stay with us.“ The model for Nelson is, of course, Japanese, but has been successfully adapted to work in the rather foreign environment of North America. „In Japan, companies have cross-ownership – *kereitsus*,“ Nelson continued.

„Honda has 74 alliances.“ IBM's Pattin interjected, „There are antitrust concerns here. Are we talking partnership or collusion?“ „The courts will decide,“ said one of the participants. „It's going to take years.“

Hewlett-Packard's Richter reframed the two paradigms, „Many firms demand that suppliers be competitive, whereas Honda helps them.“ Nelson said, „Half of our U.S. suppliers also supply the Big Three [auto makers]. Our philosophy of working with suppliers is bigger than Honda's interests.“

Ensuring Confidentiality. Several executives raised the issue of confidentiality when dealing with suppliers. How much do you really want your supplier to know about your business? „At National Semiconductor, we decided to cooperate with our suppliers, globally,“ said Dennis M. Samaritoni, Vice President, Materials and Logistics. „Sharing information. Inviting them in.“

„You invite direct competitors in?“ asked AT&T’s Pete Deschenes. „Direct competitors,“ Samaritoni affirmed. „If you think they don’t know what we’re doing already, you’re being naive.“

Sole Sourcing. Hewlett-Packard’s Richter offered insights on managing supplier relations in a partnership environment. „While you sole source individual components,“ said Richter, „you never sole source any whole category of components. Sure, you have a dominant supplier, but not one. That way you maintain competitiveness. That way you haven’t created an internal supplier-type situation.“

Measuring Performance. „How can we measure our suppliers against the market?“ asked one participant. „One way,“ said Richter, „is by using published material. But you have to measure them against the performance delta – the improvement over time – not the absolute measure. Hewlett-Packard looks to beat the industry average performance improvement.“

Calling It Quits. Supplier partnerships typically involve long-term, multiyear contracts. Michael J. Todres, Vice President, Distribution and Non-resale Purchases at J.C. Penney, asked the question, „What are the ‘outs’ in a five-year commitment? Who makes the decision to disengage if things aren’t working out?“ National Semiconductor’s Samaritoni, answered. „You can always give notice and get out. But when it becomes that intimate, the supplier becomes a part of your business. You work with them to improve performance, give measurement requirements, and set agreed-upon goals.“

„The key is [to use] performance indicators so you don’t [ever have] a crisis,“ James E. Hertz, Vice President of Corporate Services, Florida Power & Light, offered. „The supplier must remain competitive in price, quality, delivery, and technology,“ said Richter. „If one supplier’s delivery is worse than its direct competitors’, that’s demonstrable. The reason for terminating a partnership is not because your partner doesn’t meet your highfalutin’ goals, but because he or she isn’t competitive.“

At Arthur D. Little, our experience suggests that supplier partnerships, if applied thoughtfully and managed well, can be beneficial. For many companies, they are a critical success factor. However, partnerships cannot be taken lightly. Healthy tension is required to keep all parties honest and focused on their mutually agreed upon objectives.

Reengineering the Supply Chain

Many firms have chosen reengineering as a way of bridging the gap between current performance and best practices.¹ In the remainder of this article, we offer some observations on applying the discipline of business process reengineering to the supply chain.

Supply chain processes lend themselves extremely well to business process reengineering. Because many firms have ignored their supply chains, the latter harbor many broken processes – and a wide range of opportunities for improved performance. Some participants at the colloquium reported success with reengineering their supply chains. Our experience suggests a number of guiding principles:

Recognize multiple stakeholders. In reengineering the supply chain, managers must satisfy at least four major stakeholder groups – while balancing the needs of all of them:

- Customers (internal users of the supply chain)
- Employees (within the supply chain organization)
- Owners/shareholders (essentially, senior management)
- Suppliers

Put the organizational question second. If the main outcome of reengineering the supply chain is simply a shift from decentralization to centralization or vice versa, then reengineering has not really happened. The question of centralization versus decentralization is, in our opinion, a red herring. The right answer to this organizational question is really an outcome of putting in place the best possible (and most cost-effective) processes to meet stakeholders’ needs. The organizational question, therefore, is a secondary consideration rather than a primary one. Experience has shown that companies often rearrange their Purchasing responsibilities and authorities, moving from centralization to decentralization or vice versa, because a strong voice in management is making territorial claims over Purchasing „in order to meet company goals.“ In other words, someone wants control over the entire supply chain process. Do not respond to such a request without investigation. The fact is that the supply chain process is cross-functional, and no individual can control it. What is needed is shared control of the process.

Define the supply chain broadly. Does the scope of the supply chain extend beyond traditional definitions of the Purchasing department? If not, the potential for dramatic change is severely limited. The scope of the supply chain process for reengineering should include – at a minimum – the interface with internal customers at the „specification-of-need“ milestone, the „meeting-of-the-need“ milestone, and everything in between. In

addition, to sustain healthy, collaborative supplier relations, companies need to pay suppliers consistently and on time. This means that the accounts payable function needs to work with the precision of a Swiss watch. Where this is not the case, the reengineering process should include relevant portions of accounts payable as part of the supply chain.

Don't just reduce headcount. Reengineering the supply chain can yield many benefits far more valuable than savings in transaction and labor costs. These include reductions in cycle time, inventory, life-cycle costs, and transportation costs, as well as discounts on payment terms and improvements in fill-rate and delivery reliability.

For example, in the course of a much larger process redesign project, Arthur D. Little helped one client reengineer the process it used to rent construction equipment, which it did some 500 times a year. Before reengineering, this process required some 42 discrete steps, including cumbersome requisitioning, multiple approval levels, work-intensive supplier selection for each individual request, invoice matching, check processing for each individual rental, and often counter-billing. After reengineering, the process has only 2 manual steps, the number of suppliers was reduced from more than 60 to 1, and the total cycle time was reduced from 45 days to 48 hours. The annual cost to the corporation for rental of construction equipment was reduced by more than \$1 million.

In short, the success of reengineering projects should be measured by the amount of improvement that occurs in line with management's expectation. That success can be dramatically increased by not focusing on headcount reductions. While the latter are sometimes necessary, we question whether the effects of reengineering can be truly optimal if the benefits are skewed toward any one stakeholder, particularly if at the expense of other major stakeholders. Reengineering at its best can be remarkably synergistic. It shouldn't become a zero-sum game.

Sell paradigm shifts. Every reengineering experience includes a series of paradigm shifts from the old way of doing things to the new. Once the visions that embody these shifts are internalized, they become powerful motivators for the people implementing the reengineering who are able to assess the potential impact of these shifts, balancing between „conceptual“ and „managerial“ approaches. In reengineering the supply chain, these paradigm shifts include:

- Moving from arm's-length, adversarial supplier relationships to close, cooperative supplier relationships and partnerships
- Moving from an „over-the-wall,“ departmentally oriented environment to cross-functional teams
- Moving from purchasing and supply decisions based primarily on initial price to decisions based on life-cycle costs
- Moving from a bureaucratic process with many hand-offs to a flat, „one-stop“ environment
- Moving from a paper-intensive, heavily clerical requisitioning environment to a „paperless“ one

If your reengineering project is more than a month old and hasn't yet produced clear statements of these shifts as goals, be concerned. Simple messages of this kind are the key to understanding and communicating the changes that reengineering will effect in the supply chain.

¹ *For further discussion of how to increase the chances of success in business process reengineering, see „Reengineering Revisited: Achieving Seamlessness,“ by Laurence P. Chait and Anthony J. Lynch, in the second quarter 1994 edition of Prism.*

James A. Welch is an Associate Director in Arthur D. Little's Manufacturing Management Group, specializing in strategic supply management. He has helped clients improve their competitiveness by leveraging the supply chain, using a variety of approaches, including reengineering.

N. Laddie Cook is a Senior Consultant in Arthur D. Little's Logistics Management Group, with 20 years of experience helping clients in a variety of industries optimize their supply chains to improve business operations. She has helped clients through a variety of approaches, including competitive assessment, benchmarking, vision development, supplier certification, and reengineering.