



supply chain strategy

A Newsletter from **Harvard Business School Publishing** and **The MIT Center for Transportation & Logistics**

Building a Resilient Supply Chain

BY YOSHI SHEFFI

THREATS TO YOUR SUPPLY CHAIN, and therefore to your company, abound—natural disasters, accidents, and intentional disruptions—their likelihood and consequences heightened by long, global supply chains, ever-shrinking product lifecycles, and volatile and unpredictable markets.

No sure way exists for overcoming all such risks, especially high-impact/low-probability events such as an outbreak of SARS or foot-and-mouth disease, or a major terrorist attack, because the absence of historical data excludes the use of predictive statistical tools to help ensure containment of those risks.

But some organizations cope far better than others with both the prospect and the manifestation of unquantifiable risk. They don't have in common a secret formula or even many of the same processes for dealing with risk, but they share a critical trait: resilience.

The notion of organizational resilience is not new: the ability of an organization to successfully confront the unforeseen has always been a core element of success. But because the numbers and types of threats that can undermine a supply chain are now greater than ever, resilience has taken on even more significance in supply chain management. As a result, leaders in the discipline have worked to better understand what makes a particular enterprise resilient, and thus there is a burgeoning body of knowledge from which other companies stand to benefit.

Supply chain resilience no longer implies merely the ability to manage risk. It now assumes that the ability to manage risk means being better positioned than competitors to deal with—and even gain advantage from—disruptions.

My three-year research project at MIT into organizational resilience, which included interviews with dozens of companies and analysis of hundreds of disruptions, uncovered key themes in how organizations can and should build resilience—an overview of how this can be done follows. My book *The Resilient Enterprise: Overcoming Vulnerability for Competitive Advantage* (MIT Press, 2005) covers these topics in depth.

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Achieving resilience

In materials sciences, resilience represents the ability of a material to recover its original shape following a deformation. In the corporate world, resilience refers to the ability of a company to bounce back from a large disruption—this includes, for instance, the speed with which it returns to normal performance levels (production, services, fill rate, etc.).

Companies can develop resilience in three main ways: increasing redundancy, building flexibility, and changing the corporate culture. The first has limited utility; the others are essential.

Redundancy.

Theoretically, a resilient enterprise can be built by creating redundancies throughout the supply chain. The organization could hold extra inventory, maintain low capacity utilization, have many suppliers, etc. Yet although redundancy can provide some breathing room to continue operating after a disruption, typically it is a temporary—and very expensive—measure.

A company must pay for the redundant stock, capacity, and workers; moreover, such excesses are likely to lead to sloppy operations, reduced quality, and significant cost increases.

Admired and emulated supply chain strategies such as the Toyota Production System, lean production processes, and Six Sigma practices aim to create hyperefficient enter-

prises—those that operate with little inventory to deliver high-quality products in a timely fashion. A focus on redundancy actually inhibits an organization's ability to achieve such efficiency.

Flexibility.

In contrast, when a company increases supply chain flexibility, it can both withstand significant disruptions and better respond to demand fluctuations.

To achieve built-in flexibility, a company should take the following actions:

- **Adopt standardized processes.** Master the ability to move production among plants by using interchangeable and generic parts in many products, relying on similar and even identical plant designs and processes across the company, and cross-training employees. Interchangeable parts, production facilities, and people allow a company to respond quickly to a disruption by reallocating resources where the need is greatest. Intel, for example, builds semiconductor fabrication factories with identical layouts for machinery and production processes. Because of its standard fabrication design, Intel can switch production among facilities if the need arises.
- **Use concurrent instead of sequential processes.** Employing simultaneous rather than sequential

A flexible supply chain allows a company to withstand disruptions and better respond to demand fluctuations.

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processes in such key areas as product development and production/distribution speeds up the recovery phase after a disruption and provides collateral benefits in improved market responses. Lucent Technologies achieves concurrency through a centralized supply chain organization that spans various company functions, including engineering and sales. By aligning these activities with the supply chain, the company can view each operational area simultaneously—and quickly assess the status of the activity in each if an emergency arises.

- **Plan to postpone.** Design products and processes for maximum postponement of as many operations and decisions as possible in the supply chain. Keeping products in semifinished form affords flexibility to move products from surplus to deficit areas. It also increases fill rates and improves customer service without increasing inventory carrying costs, because the products can be completed when more accurate information about what the customer wants becomes available. Italian clothing manufacturer and retailer Benetton redesigned its manufacturing processes so that select products—particularly those subject to extreme demand variability—are made as generic, undyed items to be finished later, when the company obtains more accurate demand information.

Having a large supplier network distributes the risk should a problem occur.

- **Align procurement strategy with supplier relationships.** If a company relies on a small group of key suppliers, it must maintain a deep relationship with each. Such suppliers are so vital to an enterprise that the failure of any among them can have a catastrophic effect on that enterprise. By knowing each trading partner intimately, a company can better monitor the group to detect potential problems—and rely on them for help to deal in unforeseen circumstances (see sidebar).

On the other hand, if a company is not closely allied with a small group of suppliers, its supplier network had better be extensive if it is to be resilient and responsive to the market. A company with shallow relationships is less knowledgeable about its trading partners and therefore less likely to be forewarned about supply problems. Therefore, maintaining a large network of arm's-length suppliers would distribute the risk should a failure occur. Neither strategy is necessarily correct; the issue is to choose the

DEVELOPING COLLABORATIVE RELATIONSHIPS

Suppliers that are closely associated with a company are more likely to be loyal allies during a crisis. With the help of dozens of its suppliers, Toyota was able to recover very quickly from a February 1997 fire that gutted the sole plant of its main supplier of P-valves, a critical component in Toyota brake systems. Such relationships can also be crucial when responding to demand fluctuations, when the entire channel has to ramp production up or down.

approach that aligns a company's supplier relationships with its procurement strategy.

Inadequate monitoring of its supplier base almost cost Land Rover its business when UPF-Thompson, its sole supplier of chassis frames for the Discovery models, unexpectedly went bankrupt in December 2001. Land Rover was totally unprepared and eventually had to pay off some of UPF's debt to ensure the resumption of chassis supplies. A deeper relationship with UPF would

likely have alerted Land Rover before the crisis.

Cultural change.

After a disruption, the factor that clearly distinguishes those companies that recover quickly, and even profitably, from those that falter is corporate culture. On the surface, Nokia, Toyota, UPS, Dell, Southwest Airlines, and the U.S. Navy may not seem to have much in common, but these resilient organizations share several cultural traits:

- **Continuous communication among informed employees.** They keep all personnel aware of the strategic goals, tactical factors, and day-by-day and even minute-by-minute pulse of the business. Dell employees have continuous access to product manufacturing and shipment data and a wide variety of other information. Thus, when a disruption takes place, employees know the company's status: what is selling, where the raw materials are, what it is they were trying to do before the disruption hit, and so on. They can use that knowledge to make better decisions in the face of the unforeseen.
- **Distributed power, so that teams and individuals are empowered to take necessary actions.** Toyota assembly-line workers can halt production by pushing a special alarm button, and the members of U.S. Navy

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aircraft carrier crews can stop flight operations if they detect an emergency. Before a potential disruption is even visible to managers, those that are thus empowered and are “close to the action” can take necessary measures; moreover, they can respond quickly, significantly enhancing the chances of containing a disruption early on.

- **Passion for work.** Successful companies engender a sense of the greater good in their employees. Southwest Airlines CEO Herb Kelleher recounts the words of one of his managers: “The important thing is to take the bricklayer and make him understand that he’s building a home, not just laying bricks.”
- **Conditioning for disruptions.** Resilient and flexible organizations are apparently conditioned, as a result of frequent and continuous “small” operational interruptions, to become innovative and flexible in the face of HILP disruptions. Albert Wright, speaking

of working conditions at UPS, has said that “disruptions are really normal.” Since its operations are subject to adverse weather, traffic congestion, road closures, and many other problems that cause delay, the company’s recovery processes are tested daily.

Resilience enhances competitiveness

The rewards for building a resilient organization are substantial. The “hardened” enterprise will be able to not only withstand all manner of disruption but also increase its competitiveness. Unforeseen disruptions can create shortages that are not dissimilar to the demand spikes caused by supply/demand imbalances; resilient enterprises can thus react to changing market demand ahead of their competitors. ♦

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The Everyday Problems of Global Sourcing

As their operations stretch farther around the globe, Hitachi’s supply chain managers have learned to be as wary of the small issues as the big ones

BY LOREN GARY

GLOBAL SOURCING CAN DELIVER BIG SAVINGS by identifying more cost-effective suppliers around the globe. But before companies leap into the international supply chain arena, they should also consider what it takes to run a worldwide network of suppliers. If not properly managed, seemingly mundane, day-to-day problems can erode the cost benefits and threaten service levels.

When Hitachi High-Technologies expanded its sourcing program internationally, it discovered that the devil can indeed be in the details. Some issues that it has encountered, such as increased use of costly expedited freight services, can be fairly easily identified and analyzed. Other challenges are more difficult to pinpoint and resolve—for instance, cultural differences among countries.

Overcoming such glitches can take much effort and some creativity, but as the Hitachi experience shows,

managers who enter the international fray with a heightened awareness of the potential pitfalls have a decided advantage.

A premium on customer service

Mark Delgado is senior manager of a Hitachi supply chain group based in Dallas/Fort Worth. His 11-person unit obtains supply parts for Hitachi-made etching equipment used to make semiconductors. The unit’s key end customers are large manufacturers of semiconductors.

Hitachi’s only manufacturing facility is in Japan, on the island of Honshu. At one time, the factory manufactured most of the spare parts for the etching equipment; it relied on local vendors for supplies and shipped the finished parts to the United States.

Today, the global sourcing program that Delgado’s unit instituted uses vendors throughout the world. Spare parts are manufactured in Japan and in the United States, and

finished products are shipped to the U.S. and to warehouses in Ireland and Israel.

On-time delivery is crucially important to Delgado's team. The parts-delivery deadlines imposed by semiconductor manufacturers can range from eight days to four hours. Also, Hitachi incurs stiff financial penalties for failing to achieve the 95%–99% on-time performance that it promises.

Satisfying such stringent performance requirements is tough enough when parts are supplied locally, but there is even less room for error when the network is stretched across the globe. (See the sidebar “Cultural Conundrum.”)

Customs issues

As Hitachi's supply chain has expanded globally, customs management has become much more complex. Although much of the tariff code for international trade has been harmonized, some classifications and regulations still differ from country to country. For example, electrical equipment requires one type of certification, packaging, and labeling to be allowed into the U.S., and a different type to enter Europe.

U.S. government regulations concerning the materials that Hitachi ships take up four binders, each 1,000 pages long, says Delgado. Misclassify an item, and the company could end up paying more in customs fees. And even if

only one component has been misclassified, the entire shipment is likely to be held up in customs until that item is in compliance.

But it is not just the complexity of tariff codes that can impede the flow of goods. New security measures, such as tamper-proof locks on freight containers, have also made compliance more difficult.

Although 80% of Hitachi's shipments are properly classified and clear customs in half a day at most, says Delgado, problems with the other 20% can undermine the

company's reputation for on-time delivery. Moreover, customs delays may inflict direct economic damage on Hitachi because its contracts demand 95%–99% on-time delivery.

Employing a good freight forwarder with expertise in trade compliance can ease the burden considerably. Hitachi uses two firms, one in the U.S. and the other in Japan, but Delgado is considering switching to a single forwarder that covers both countries so that Hitachi can deal with only one provider.

Expedited costs

When deadlines are very tight or shipments have been delayed, expedited transportation services sometimes become a necessity. “By expediting some parts via American Airlines versus sending them from Osaka and then

As Hitachi's supply chain has expanded globally, customs management has become much more complex.

CULTURAL CONUNDRUM

Thanks to the efforts of Delgado and his team, Hitachi's global sourcing program has grown to the point that several vendors around the world are supplying more parts, of higher quality, faster, and at a better price, than the factory in Japan and its network of local vendors. Viewed from a purely economic perspective, shifting the entire spare parts business to more efficient vendors that are better able to accommodate increased demand on short notice would make sense.

But the philosophy of the *keiretsu* still flourishes at Hitachi: “Not only does the factory have a strong preference for vendors located nearby,” says Delgado, “it is also reluctant to cut ties with those vendors when they're underperforming because of the culture of losing face. Even if Hitachi does take business from a vendor, it will typically try to find other business to give to that vendor to replace what has been taken away.”

Recently, when Delgado's unit decreased its order for

spare parts from the Hitachi factory in Japan from 400 to 100 pieces a month, the factory's response was “to ask us to continue placing orders for the additional 300 pieces a month because it felt obliged to keep its commitment to a Japanese vendor it had contracted with to supply material,” says Delgado. So the order will remain at 400 pieces per month until the factory's commitment has been met. The result: depending on whose budget has the greater flexibility, the factory or Delgado's unit will lose tens of thousands of dollars because of the excess inventory that may take a year to deplete.

There is no easy way to bridge such cultural divides, Delgado says. It takes constant attention to detail and effort to establish and maintain effective communications between the parties. He recently hired a team member who is fluent in Japanese, in part to facilitate communications between his unit and trading partners in Japan.

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having them loaded on a regular Korean Air flight, we can save two days—and sometimes even more,” Delgado notes. “Unfortunately, expedited shipping services can double the cost of regular freight, if not more.”

When Hitachi’s use of expedited shipping surged more than 50% several months ago, an intense investigation ensued. Delgado looked at whether the company was maintaining sufficient inventory of safety stock to diminish the need for expedited shipping. The supply chain team also scrutinized Hitachi’s vendors’ on-time delivery performance, order fill rates (which measure how completely all the parts and quantities requested have been supplied), and compliance with any special packaging requests that Hitachi had made.

One of the problems was traced to packaging procedures at the factory in Japan. As Delgado explains, sometimes a handful of parts earmarked for quick delivery have already been consolidated into a larger, less urgent shipment—but “it is too costly to separate them,” so the entire package is expedited.

The factory’s packaging process is under review.

Another problem is that customers are loath to give Hitachi sensitive information on their production schedules. The resulting difficulty in anticipating demand leads to Hitachi’s having to respond to unexpected, last-minute orders that require expedited delivery. This is a tricky issue to resolve, since a supplier cannot compel its customer to reveal critical scheduling information.

A way to moderate the dilemma is to use field staff who are in regular contact with customers to obtain information on production timetables, and to relay the information to the sourcing team. “We are trying to get field engineers to do this,” Delgado says.

The vendor link

Hitachi is also relying on collaborative relationships with vendors to address some of the myriad problems of an increasingly global supply chain. At the root of many problems is the mismatch between customer lead times and the time Hitachi needs to order the required parts from its expanding network of vendors and make the final delivery.

“For us, the lead time is 60 to 180 days, but the lead time for the customer may be only eight days,” Delgado says.

By sharing more accurate and timely information on projected parts sales with its U.S. vendors, Hitachi makes it easier for them to plan ahead, in turn cutting Hitachi’s lead

times; as a result, both the vendors and Hitachi can be more responsive to changes in customer demands.

“We now provide, on a monthly basis, three-month rolling forecasts of our need for parts to each of our high-volume domestic [U.S.] vendors,” Delgado says. “Before, we shared those forecasts only with the factory in Japan.” As the numbers of its global suppliers increase, Hitachi plans to provide forecasts to them, as well.

The improvements in forecasting and responsiveness yield benefits across the sourcing network. For example, better forward planning reduces the reliance on expedited shipments. Similarly, vendors are able to be more responsive to unexpected orders because they have a clearer picture of what parts are available. Improved forecasts also help vendors to minimize the volume of safety stock they carry. And if a customs delay is the problem, knowing the status of current parts inventories makes it easier to look for alternative sources before the customer’s production schedules are disrupted.

Some solutions that have emerged from these collaborative efforts are more creative. For one critical part, instead of buying the finished item in Japan, Delgado’s team now ships raw material by boat from Japan to the U.S., where a U.S.-based vendor turns out the part. Even though shipping requires an additional 15–18 days, producing the part in the U.S. has cut both costs and lead times for the part.

Another resourceful initiative that resulted in savings was the modification of vendors’ manufacturing schedules so that more parts from overseas arrived in the U.S. on weekdays rather than Saturdays; Hitachi thus avoids paying weekend overtime rates to process the imports.

Such practices do not define global sourcing strategies, but they provide solutions to everyday problems that grease the wheels of worldwide supplier networks and deliver real cost benefits. As the geographic bounds of sourcing programs continue to expand, the small stuff can make the difference between mediocre performers and those that are stars. ♦

Sharing more accurate and timely information on projected parts sales enables both Hitachi and its vendors to be more responsive to changes in customer demand.

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Making Operational Innovation Work

When done right, few capabilities are more powerful than ongoing internal innovation

BY MICHAEL HAMMER

OPERATIONAL INNOVATION is notoriously difficult. The power of creating and deploying new ways of performing fundamental business processes is indisputable; it has been the springboard to success for leading companies in virtually every industry. But many firms have failed at their efforts to make operational innovation work. What is the secret to success? The experiences of Schneider National, a transportation and logistics firm based in Green Bay, Wisconsin, provide an object lesson in how to get operational innovation right.

Founded in 1935, this privately held company has a long history of growth; by the late 1990s, it had become the largest full-load trucking firm in the country, serving customers such as Lowe's, Wal-Mart, and Georgia-Pacific.

The company had nearly \$3 billion in annual revenue and more than 20,000 employees, and its orange tractors and trailers were fixtures on U.S. interstates.

But in 2000, Schneider's growth slowed to a snail's pace, productivity dipped, and return on capital dropped. The company's managers had the insight to realize that more of the same would not get them out of the hole they were in—indeed, more of the same is what had gotten them into it. They determined that in a highly competitive industry such as theirs, which was suffering from enormous overcapacity, serving customers better than the competition was the key to success. Stretch goals were set for customer satisfaction, and a project was begun to tackle and improve one aspect of the company's interactions with customers, namely how it prepared and delivered responses to customer requests for proposals (RFPs). A team of highly capable individuals was convened to create a new way of developing these proposals. They came up with a lot of very good ideas, and there was considerable excitement about the opportunity. Yet the net result of this effort was absolutely zero: no changes were made, and life continued as before.

That's the bad news. The good news is that Schneider's leaders did not give up, but restarted the effort in a different way. This time around the company was astoundingly successful. The time to respond to a customer's RFP, which had been in the range of 30–45 days, plummeted to 1–2 days. These results started to appear within nine months of the project getting under way and were fully realized in less

than two years. By getting back to customers so much faster than its competitors, Schneider was able to shape the terms of competition. The result was a rise of some 70% in the percentage of bids that Schneider won, which translated into sales increases of hundreds of millions of dollars annually. Ironically, many of the ideas that had been developed in the original project resurfaced in the new system for responding to RFPs.

So what changed between the first and second efforts that made the difference between failure and success? There were six key factors:

Process focus

When the effort restarted, it began with the creation of an *enterprise process model*, which describes a business's operations in terms of a small number of value-creating end-to-end processes. Schneider's model included Develop Transportation Solutions, Acquire New Business, Acquire Transportation Order, Move Freight, and Provide Ability to Move Freight. These few processes encompassed virtually all work performed by Schneider's thousands of employees. By defining the Acquire New Business (ANB) process, setting its boundaries, determining its metrics, and targeting it for improvement, Schneider appropriately defined the problem to be solved.

Most companies set too narrow a scope for their innovation efforts and thus can make only incremental improvements. The first time around, Schneider conceptualized the effort purely in terms of proposal preparation, thereby excluding numerous groups and activities relevant to the larger goal of acquiring new business. By focusing the second time around on the entire ANB process, comprising as it did eight different departments and a host of different activities, the Schneider team could address the full range of issues responsible for slow customer response.

Process owners

Major results demand change to many parts of an organization; but since each part of the organization—and its manager—has its own agenda, goals, and metrics, efforts to make major change typically run aground on the shoals of turf, inertia, and resistance. A process owner is a senior executive empowered to make the changes needed to the

Making Operational Innovation Work (continued)

process across the enterprise as a whole. Schneider appointed process owners for each of its processes; the process owner for ANB was the driving force behind the creation and successful implementation of a new way of winning sales opportunities.

Full-time design team

The first time, the people involved in developing new ways of working were themselves working on only a part-time basis, typically less than eight hours per week; the second time, this project was their sole responsibility. Part-time assignment to a process redesign team is an exercise in frustration: scheduling is a nightmare, emergencies in team members' day jobs inevitably arise, and the organization is inclined to doubt leadership's commitment if it can spare only limited resources. Schneider treated process redesign as the serious undertaking it is, investing in education for the team members, providing them with a formal methodology, and backing them up with a program office. Most team members stayed with the effort between 15 months and two years—that is, until the design was largely in place and delivering results.

Managerial engagement

The finest idea will not get implemented unless there is an organizational framework for shepherding it from concept to reality. Schneider put in place several groups to ensure that the design team's innovations did not languish in the limbo of reports and studies.

First, seniormost leadership was actively engaged in this effort, meeting monthly to review progress and solve problems that needed their involvement. Second, a process council was formed, consisting of the process owners and a handful of other operating managers. This group was responsible for boosting Schneider's operating performance by linking improvement initiatives to strategy and by leading change in the business. Third, senior leaders from each department involved in the ANB process were brought together as a team to lead the implementation of the new process design. This was a particularly important and difficult role, requiring departmental managers to let go of their focus on narrow departmental concerns and focus instead on the larger goals of the end-to-end process.

Building buy-in

The rubber of operational innovation hits the road at the front lines, where people will have to change what they do on a daily basis and how they do it. For many, this is a difficult and even wrenching experience, and one that they will find all kinds of excuses to avoid. Dropping such changes on them out of the blue will guarantee failure, and preach-

ing to them about enterprise financial goals will not help them adjust. Schneider wisely got the front lines engaged throughout the redesign effort. A thousand people were exposed to the new process as it was being developed, making them feel like participants rather than victims and helping them see both the flaws in the old ways of doing things and the power of the new. Many of these individuals were turned from resisters into advocates of change. They were also provided with training and education, reinforcement and support, and results-based incentives, all to help them adapt to the new ways of operating.

Bias for action

Voltaire's observation that perfection is the enemy of the good is especially germane to operational innovation. Companies that strive to design the ultimate new way of doing things usually do nothing at all; they lose momentum while tinkering and revising, and the resulting solution is too grandiose to be implemented. Wisely avoiding this trap, Schneider adopted a principle of "70% and go": develop a solution that provides most but not all desired capabilities, get it into the field quickly, and then enhance it over time. This approach allows concepts to be tested, builds momentum and credibility, and delivers early benefits that silence critics and sway doubters.

The revised ANB process differs from the old one in numerous ways: sales reps, who had been specialized by offering, now represent all Schneider's services, so no time is lost handing off an opportunity from rep to rep; proposals no longer bounce across multiple departments but are handled by integrated customer response and development teams; and pricing has been simplified, standardized, and supported with a new computer system.

This new process is far from the end of the story, however. Enterprises are tightly integrated systems; change one part, and many other parts must adapt. Schneider quickly discovered that its existing ways of handling orders and shipments could not accommodate the increased volume generated by the new ANB process, so it began redesign efforts for these processes, which are now delivering significant business value. Nor was the new ANB process enshrined behind glass. A new project has just kicked off to come up with a revised design that will exploit advances in technology to support customers even more effectively. ♦

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How Supply Chains Drive M&A Success

Supply chain integration gets short shrift in many big deals.
And that's a big mistake.

BY TOM HERD, ARUN K. SAKSENA, AND TERRY W. STEGER

AFTER A LULL OF SEVERAL YEARS, the mergers and acquisitions market is heating up. The *Financial Times* reports that in the first five weeks of 2005, more than \$150 billion in U.S. deals were announced, up 32% from the same period in 2004. An Accenture survey found that 70% of executives at large companies worldwide are undertaking an M&A transaction or plan to do so this year.

Yet, historically, M&A deals have often fallen short of expectations. Numerous studies in the past 20 years—including the landmark article by Michael Porter, “From Competitive Advantage to Corporate Strategy,” in the May–June 1987 *Harvard Business Review* (Reprint # 87307)—have found that at least half of all mergers fail to create shareholder value. More recently, Miami University management professor Martin Sikora estimated that only one-third of mergers create shareholder value.

M&A investors are frequently shortchanged for various reasons, but one of the most critical is that the companies involved neglect the important role that supply chains can play in allowing deals to bear the ripest fruit.

Inattention to the supply chain is usually evident across the board: during the predeal strategy process, in the merger-planning stage, and even as the organizations involved are being integrated. Having worked on mergers such as Hewlett-Packard/Compaq, Cingular Wireless/AT&T Wireless, and Unilever/Best Foods—and having studied 15 other mergers during the past eight years—Accenture has discovered that how the combining entities manage supply chain issues is a major factor in creating M&A value. Specifically, we have identified several actions—in establishing supply chain leadership, identifying goals, developing implementation plans, and measuring success—that merging companies take to squeeze more value from their merging supply chains, and so quickly achieve more robust overall benefits.

Realizing the benefits

Due to the complex nature of business combinations, and the myriad differences in companies’ cultures, strategies, and operations, there is no standard way to manage an M&A. However, in Accenture’s experience, companies that have reaped significant benefits from a deal tend to have a similar approach to the supply chain during a merger.

At a high level, that approach is distinguished by how it brings together supply chain strategy and postmerger strategy expertise in all phases of the merger process, from predeal planning through integration. In most mergers, however, the supply chain tends to be overlooked or minimized in the early stages of planning, and is viewed primarily as something to be attended to after the deal is hammered out.

Supply chain–centric approaches to M&A also differ from traditional practices in some other important ways.

Establishing the supply chain leadership and team.

One of the most critical steps that the senior management of merging companies can take is to identify the supply chain leader and establish a supply chain integration team. The leader should be fully dedicated to the supply chain during the merger and should be identified early in merger planning to ensure focus on the supply chain throughout the process. The leader should be a senior executive, a seasoned “heavyweight” who has credibility with peers and relationships throughout the organization. The supply chain team should be staffed by experienced, knowledgeable managers from both companies (and, potentially, outside experts as well) who are on the team full time, have a well-defined charter and scope, and are sponsored by a senior C-level executive.

For instance, one communications company that Accenture worked with realized that approximately 30% of the targeted savings in its merger with a similar organization were in their supply chains (mostly, in the efficiencies that would result from combining network procurement and inventory reduction). Therefore, very early in the planning process, senior executives identified the supply chain leadership and established an integration team with a clear charter to aggressively generate savings in procurement, logistics, and asset management.

Identifying realistic goals.

Many mergers have been viewed as failures because they did not achieve the benefits that the combining companies had cited to justify the deals. And, more often than not, those deals were destined for failure because the antici-

Drive M&A Success (continued)

pated benefits were wholly unrealistic. Estimating the value of potential benefits in a deal—including those generated by the supply chain—requires skillful blending of “top-down” and “bottom-up” methodologies.

The top-down methodology helps the deal-execution team ensure that benefit targets are realistic from an external perspective—that is, whether the projected benefits can be achieved in light of factors such as the current business environment, precedents for similar deals, and other competitive realities. Industry economic and operating benchmarks, insights from expert external advisers, and in-depth analyses of previous, comparable mergers enable the merger team to more accurately determine the magnitude of the opportunity and ensure that the companies’ benefit estimates are rooted in reality.

The bottom-up methodology guides the execution team in analyzing target benefits from an internal perspective by outlining the possible cost-saving and revenue-generating opportunities across the merging companies’ supply chains (such as closing redundant manufacturing facilities, pooling procurement to gain leverage over suppliers, and combining distribution centers).

By mapping the bottom-up benefits to the top-down benchmarks, a company can more effectively evaluate whether its benefits estimates are realistic—and whether the due-diligence teams have been aggressive enough in defining specific opportunities—before making the merger announcement.

One of the main factors in the success of several communications-industry mergers was the use of this top-down/bottom-up blending. The coordination between the M&A leadership and planning teams helped sort through the intricacies of what were complex acquisitions and led to an understanding of what value could be realized through supply chain synergies—and from which programs those benefits could be derived.

Developing the implementation road map.

In addition to establishing leadership and identifying solid target benefits, merging companies must determine both Day 1 and Day 100 requirements specifically for the supply chain. Most companies consider Day 1 to be when the merging companies complete their change of control (COC) and begin to operate under a single governance structure. But simply closing the deal does little to ensure that the merging companies begin operating as an integrated enterprise.

By identifying the supply chain initiatives that the companies must take to deliver the planned cost and revenue benefits—and by prioritizing those initiatives based on ease of implementation and speed of value creation—the

THE EMERGENCE OF THE SUPPLY CHAIN

Our research and experience have revealed that a sharp focus on the supply chain is particularly important for merging companies that seek to expand into new markets, consolidate excess capacity, and drive down operating costs. It is in such deals, often involving two large companies, that mastery of supply chain integration plays a critical role in determining success.

Supply chains are often the most significant potential source of cost savings in a merger. In some deals on which we have worked, it has accounted for 30%–50%—or more—of the savings. In June 2005, Taipei-based BenQ announced that it had acquired the mobile phone business of Munich-based Siemens. The supply chain (most prominently, manufacturing and procurement) is expected to account for 70% of total cost savings. Similarly, in one of the biggest and highest-profile mergers of the past few years, Hewlett-Packard/Compaq, more than \$1 billion in cost savings resulted from the supply chain; this represented nearly half of the combination’s total cost savings.

Yet, if effectively managed throughout the M&A process, the supply chain can also make significant contributions not only to cost savings but also to revenue growth.

Cadbury Schweppes’s \$4.2 billion acquisition of the confectionary business of Adams (maker of, among other products, Halls cough drops and Bubblicious, Dentyne, and Trident gum) has paid off for Cadbury. Initially viewed with skepticism by many analysts, the deal has reinvigorated the Adams brands. Cadbury reported that sales in the acquired unit exceeded acquisition business-case estimates a year after the deal closed. The effective implementation of distribution channels for important new markets played a major role in increasing sales. Cadbury Schweppes’s supply chain performance exceeded original estimates for the first year by nearly 14%—just 100 days after change of control.

supply chain integration team will help ensure that the merged organization can start generating value immediately, on Day 1. Moreover, the most successfully merged companies focus on maximizing value creation in the first 100 days after COC. By creating a sense of urgency during those first 100 days, the senior executive and supply chain leaderships can make critical integration decisions a priority and deliver tangible “quick wins” that build momentum and increase the confidence of the executive team, supply chain organization, suppliers, customers, and the investor community.

During a multibillion-dollar communications industry merger, Accenture worked with the supply chain integration team to develop a “Day 1/Day 100 Integration Play-

book” of specific plans for phasing in the integration of the procurement organization, establishing a new supply chain organizational structure, and standardizing operating policies and processes. We also developed a synergy-capture plan, which included both a timetable for the phased reduction of network inventory and—to capture sourcing-related benefits—a strategic-sourcing schedule for renegotiating selected contracts and spending levels.

Measuring the critical outcomes.

Merged companies need suitable supply chain integration metrics to help gauge the success of integration and to keep the team focused on the most important priorities.

For example, during the merger of two large communications companies in 2000, each source of expense and capital savings was documented, along with the assumptions and methodology for measuring progress toward the savings goal. A dedicated team was formed to track performance vis-à-vis savings goals, with the expectation that the increased focus would improve the likelihood of achieving the promised results.

The chart “Key Supply Chain Integration Metrics” enumerates some key integration-success metrics.

Short-term focus, long-term benefits

Now, more than ever, the ability of companies to effectively manage the supply chain before, during, and immediately after a merger determines whether a business combination will fulfill its promise. Witness the integration of Hewlett-Packard and Compaq. By identifying clearly achievable cost savings (particularly in direct materials procurement, manufacturing, and logistics), thoroughly planning the merger, and rigorously executing the process, the newly merged HP/Compaq was able to wring out significant amounts of excess costs from its operations. This achievement was a major factor in HP’s ability to achieve one of its main targets, \$2.5 billion in cost savings, a full year ahead of schedule.

Because of the major impact that the supply chain can have on a deal—and on the ongoing strength and success of the newly merged company—companies must bring supply chain considerations to the forefront of any merger discussions. Only by doing so can they fully and accurately understand the cost and revenue opportunities—not to mention the challenges and potential pitfalls—that the prospective deal presents.

Key to maximizing the supply chain benefits—and thus the overall value generated by the merger—are the following steps:

- Assigning responsibility for the supply chain to an experienced and influential executive.

KEY SUPPLY CHAIN INTEGRATION METRICS

Metric	Indicates Progress In...
<ul style="list-style-type: none"> • Supply chain synergies captured versus synergies targeted 	<ul style="list-style-type: none"> • Revenue synergy • Operating-expense synergy • Capital-expense synergy • Working-capital synergy
<ul style="list-style-type: none"> • Percentage of Day 1 requirements successfully met on time 	<ul style="list-style-type: none"> • Organizational and functional stabilization
<ul style="list-style-type: none"> • Number of contracts repriced and renegotiated for cost savings 	<ul style="list-style-type: none"> • Sourcing-strategy implementation
<ul style="list-style-type: none"> • Negotiated savings as a percentage of overall spending 	<ul style="list-style-type: none"> • Operating-expense synergy • Capital-expense synergy
<ul style="list-style-type: none"> • Spending compliance with procurement contracts 	<ul style="list-style-type: none"> • Implementation of procurement controls
<ul style="list-style-type: none"> • Purchase-order cycle time 	<ul style="list-style-type: none"> • Implementation of standard processes and systems to prevent potential supply disruptions
<ul style="list-style-type: none"> • Third-party logistics provider order-fulfillment costs versus premerger baseline • Transportation costs versus premerger baseline 	<ul style="list-style-type: none"> • Operating-expense synergy
<ul style="list-style-type: none"> • On-time order delivery • Order accuracy • Fill rate versus premerger baseline 	<ul style="list-style-type: none"> • Implementation of processes and systems to prevent deterioration in customer service
<ul style="list-style-type: none"> • Inventory turns 	<ul style="list-style-type: none"> • Working-capital synergy

- Developing realistic benefit targets that align with internal and external benchmarks.
- Devising a detailed supply chain integration plan.
- Using appropriate metrics to gauge integration success.

By following these basic guidelines, merging companies can increase the probability that customers, shareholders, and Wall Street will feel as good about the new entity a year after the merger as the constituent organizations’ senior executives did the day it was announced. ♦

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One of Dot-Com's Lasting Legacies

BY KEN COTTRILL

THE DOT-COM BUBBLE MAY BE RECEDING into corporate history, but it is still reshaping supply chains and will continue to do so for years to come. Companies such as Amazon, which celebrated its 10th anniversary in July, have shifted the focus of supply chain management from delivering products to delivering on customer needs—a change that is profoundly affecting not only supply chain strategy but also corporate strategy at both “new” and “old” economy companies.

Amazon's fixation with the customer experience was evident from its inception as it set about building a groundbreaking supply chain capable of supporting unprecedented convenience and product selection. Almost a decade and about \$1 billion later, Amazon has reinvented order fulfillment with a supply chain infrastructure that handles millions of online transactions daily and a massive variety of products, including not only its own substantial inventory but also that of a wide range of partners. Amazon's use of technology gives it the inventory visibility it needs to constantly match its mix of service features—for example, free shipping for premium customers and certain products—to suit changing demand. A mammoth database of customer preferences, such as what types of products they might like to buy based on their purchasing histories at Amazon, reinforces the company's relationship with its base of nearly 49 million active customers.

Other enterprises have recognized the worth of the slick online machine. Companies such as Target rent fulfillment space on Amazon; others have hired the dot-com to run their e-commerce platforms as well as associated warehouse and distribution operations. So far this year, Amazon has added agreements with retailers DVF Studio, bebe, Macy's, Marks & Spencer, OshKosh B'Gosh, and Sears Canada to its services portfolio. Third-party deals of this kind now bring Amazon almost \$2 billion in annual revenue.

Amazon's fixation with the customer experience was evident from its inception.

Amazon is by no means the only dot-com to have left a lasting mark on supply chain management. In the online grocery space, for example, the groundbreaking Webvan also blazed supply chain trails, effectively eliminating an enormous and costly stage in the supply chain. Unfortunately, Webvan made some big mistakes, notes Ken Boyer, a professor at Michigan State University's Broad Graduate School of Business. For example, it offered free shipping services for most deliveries, and the windows for its delivery times were too narrow to be sustainable. It also built a network of expensive, highly automated distribution centers to support its rapid expansion program—which proved too much a burden for the business to sustain.

But Webvan's problems with execution belied a legitimate supply chain-driven business model. Today, a new crop of online food purveyors is following in its steps while avoiding its missteps. FreshDirect in the New York City area, Plumgood Food in Nashville,

and Ocado in the U.K. are among those reinvigorating this category, Boyer says. They are focused on tightly defined geographic areas and customer demographics, and each is typically supported by a single distribution center located close to its core markets. Their approaches might be more focused than Webvan's, and their aspirations more reasonable, but they would not exist without the breakthrough supply chain thinking of the dot-com bubble era.

There may be much about the dot-com hysteria of the late 1990s that business leaders would like to forget; but the innovations in supply chain management, and affirmation of its ability to drive corporate strategy, are not among them. ♦

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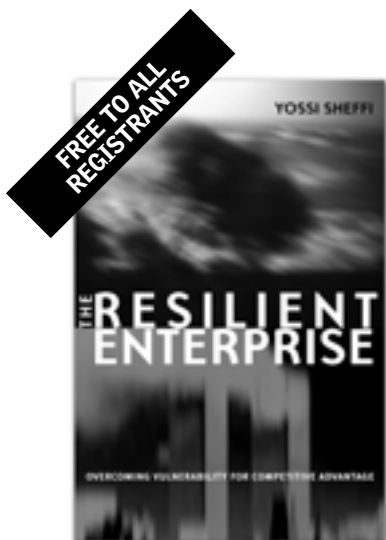
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