

*Two Japanese automakers have had stunning success building relationships with North American suppliers—often the same companies that have had contentious dealings with Detroit’s Big Three. What are Toyota and Honda doing right?*

## Building Deep Supplier Relationships

by Jeffrey K. Liker and Thomas Y. Choi

### The 21st Century Supply Chain

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Managing the modern supply chain is a job that involves specialists in manufacturing, purchasing, and distribution, of course. But today it is also vital to the work of chief financial officers, chief information officers, operations and customer service executives, and certainly chief executives. Changes in supply chain management have been truly revolutionary, and the pace of progress shows no sign of moderating. In our increasingly interconnected and interdependent global economy, the process of delivering supplies and finished goods (and information and other business services) from one place to another is accomplished by means of mind-boggling technological innovations, clever new applications of old ideas, seemingly magical mathematics, powerful software, and old-fashioned concrete, steel, and muscle.

An end-to-end, top-to-bottom transformation of the twenty-first-century supply chain is shaping the agenda for senior managers now and will continue to do so for years to come. With this special series of articles, *Harvard Business Review* examines how corporations' strategies and structures are changing and how those changes are manifest in their supply chains.

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by Jeffrey K. Liker and Thomas Y. Choi

December 2004

Two Japanese automakers have had stunning success building relationships with North American suppliers—often the same supplier companies that have had contentious dealings with Detroit's Big Three. What are Toyota and Honda doing right that their American counterparts are missing?

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# Building Deep Supplier Relationships

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“The Big Three [U.S. automakers] set annual cost-reduction targets [for the parts they purchase]. To realize those targets, they’ll do anything. [They’ve unleashed] a reign of terror, and it gets worse every year. You can’t trust anyone [in those companies].”

—*Director, interior systems supplier to Ford, GM, and Chrysler, October 1999*

“Honda is a demanding customer, but it is loyal to us. [American] automakers have us work on drawings, ask other suppliers to bid on them, and give the job to the lowest bidder. Honda never does that.”

—*CEO, industrial fasteners supplier to Ford, GM, Chrysler, and Honda, April 2002*

“In my opinion, [Ford] seems to send its people to ‘hate school’ so that they learn how to hate suppliers. The company is extremely confrontational. After dealing with Ford, I decided not to buy its cars.”

—*Senior executive, supplier to Ford, October 2002*

“Toyota helped us dramatically improve our production system. We started by making one component, and as we improved, [Toyota] rewarded us with orders for more components. Toyota is our best customer.”

—*Senior executive, supplier to Ford, GM, Chrysler, and Toyota, July 2001*

No corporation needs to be convinced that in today’s scale-driven, technology-intensive global economy, partnerships are the supply chain’s lifeblood. Companies, especially in developed economies, buy more components and services from suppliers than they used to. The 100 biggest U.S. manufacturers spent 48 cents out of every dollar of sales in 2002 to buy materials, compared with 43 cents in 1996, ac-

ording to *Purchasing* magazine’s estimates. Businesses are increasingly relying on their suppliers to reduce costs, improve quality, and develop new processes and products faster than their rivals’ vendors can. In fact, some organizations have started to evaluate whether they must continue to assemble products themselves or whether they can outsource production entirely. The issue isn’t whether

companies should turn their arms-length relationships with suppliers into close partnerships, but how. Happily, the advice on that score is quite consistent: Experts agree that American corporations, like their Japanese rivals, should build supplier *keiretsu*: close-knit networks of vendors that continuously learn, improve, and prosper along with their parent companies. (Incidentally, we don't mean that companies should create complex cross holdings of shares between themselves and their suppliers, the way Japanese firms do.)

For corporations intimidated by the prospect of building familial ties with the suppliers they've traditionally bullied, our research offers some bad news and some good news. First, the bad news: It's tougher to build relationships with suppliers than companies imagine. For more than 20 years, many American businesses have unsuccessfully tried to build bonds with suppliers. As part of the quality movement of the 1980s, these companies ostensibly adopted the Japanese partnering model. They slashed the number of suppliers they did business with, awarded the survivors long-term contracts, and encouraged top-tier vendors to manage the lower tiers. They also got top-tier suppliers to produce subsystems instead of components, to take responsibility for quality and costs, and to deliver just in time. In 2001, the Malcolm Baldrige National Quality Award Committee made "key supplier and customer partnering and communication mechanisms" a separate category on which it would judge the best companies in the United States.

However, while these American companies created supply chains that superficially resembled those of their Japanese competitors, they didn't alter the fundamental nature of their relationships with suppliers. It wasn't long into the partnering movement before manufacturers and suppliers were fighting bitterly over the implementation of best practices like continuous quality improvement and annual price reductions. By the turn of the millennium, two additional factors made cost, again, the main criterion in supplier selection. First, companies were more easily able to source globally, notably from China. They jumped to the conclusion that the immediate benefits of low wage costs outweighed the long-term benefits of investing in relationships. Second, the development and spread of Internet-based technologies allowed companies to get suppliers to

compete on cost more efficiently—and more brutally—than they used to. Consequently, manufacturer-supplier relations in America have deteriorated so much that they're worse now than before the quality revolution began. In the U.S. automobile industry, for instance, Ford uses online reverse auctions to get the lowest prices for components. GM writes contracts that allow it to shift to a less expensive supplier at a moment's notice. Chrysler tried to build a *keiretsu*, but the process unraveled after Daimler took over the company in 1998. Not surprisingly, the Big Three have been more or less at war with their suppliers. Having witnessed the American automakers' abject failure to create *keiretsu*, most Western companies doubt they can replicate the model outside the culture and society of Japan.

Time, perhaps, for the good news. Contrary to the cynics' beliefs, the reports of the *keiretsu*'s demise are greatly exaggerated. The Japanese supplier-partnering model is alive, well, and flourishing—not just in Japan but also in North America. During the past decade, \$160 billion Toyota and \$75 billion Honda have struck remarkable partnerships with some of the same suppliers that are at loggerheads with the Big Three and have created latter-day *keiretsu* across Canada, the United States, and Mexico. The two Japanese companies work closely with their suppliers in those areas. Of the 2.1 million Toyota/Lexus vehicles and the 1.6 million Honda/Acura vehicles sold in North America in 2003, Toyota manufactured 60% and Honda produced 80% in North America. Moreover, the two companies source about 70% to 80% of the costs of making each automobile from North American suppliers. Despite the odds, Toyota and Honda have managed to replicate in an alien Western culture the same kind of supplier webs they built in Japan. Consequently, they enjoy the best supplier relations in the U.S. automobile industry, have the fastest product development processes, and reduce costs and improve quality year after year. Consider the evidence:

- In 2003, when Planning Perspective, a Birmingham, Michigan-based research company, conducted the OEM Benchmark Survey, one of the principal measures of manufacturer-supplier relations in the U.S. automobile industry, it rated Toyota and Honda as the most preferred companies to work with. In 17 categories, ranging from trust to perceived opportunity, Toyota and

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Honda led. They were followed by Nissan, while Chrysler, Ford, and GM were a distant fourth, fifth, and sixth. In particular, suppliers said that Toyota and Honda were better communicators and that they were more trustworthy and more concerned about suppliers' profitability than other manufacturers were.

- While U.S. automakers take two to three years to design new cars, Toyota and Honda have consistently been able to do so in just 12 to 18 months. Last year, a J.D. Power and Associates study found that suppliers rated Toyota

among the best and rated Honda above average at promoting innovation. The study found that Chrysler, Ford, and GM were below average at fostering innovation with vendors.

- According to several academic papers, Toyota and Honda brought down the manufacturing costs of the Camry and the Accord by about 25% during the 1990s. Still, the two companies have appeared at the top of surveys by J.D. Power and Associates and *Consumer Reports* on initial quality and long-term durability. They also produced the most reliable cars and recalled fewer vehicles in the United States in the past ten years than GM, Ford, or Chrysler did.

Just how do Toyota and Honda get it right when their rivals get it so wrong? We have been studying the American and Japanese automobile industries for more than two decades. Between 1999 and 2002, we interviewed more than 50 Toyota and Honda managers in Japan and the United States, several executives who had left those companies' American subsidiaries, and managers from more than 40 suppliers in the North American automobile industry. We also visited Toyota and Honda plants in the United States, suppliers' factories and technical centers, the Toyota Technical Center in Ann Arbor, Michigan, and Honda of America's Purchasing Office in Marysville, Ohio. Our research shows that Toyota and Honda have developed partnerships with their American suppliers by following similar approaches.

### Tough Love

When Toyota and Honda set up manufacturing operations in North America in the 1980s, they started by encouraging the creation of some joint ventures between their Japanese suppliers and American companies. Later, they selected local companies they could develop as suppliers. They gave their new vendors small orders to begin with and expected them to meet certain cost, quality, and delivery parameters. If suppliers coped with the first orders well, Toyota and Honda awarded them larger contracts and taught them their "ways" of doing business. (For more on these approaches, see Jeffrey K. Liker's book, *The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer* and *Powered by Honda: Developing Excellence in the Global Enterprise*, by Dave Nelson, Rick Mayo, and Patricia E. Moody.)

When we compared the elements of Toyota's partnering model with those of Honda's,



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## Understand How Your Suppliers Work

“Whenever I ask [executives in the Big Three] how they developed a target price, the answer is: silence. They base the target price on nothing. The finance manager just divvies up the available money: ‘Here’s what we normally spend on braking systems, here’s what you’ll get this year.’ They have no idea how we’ll get those cost reductions. They just want them.”

—Senior executive, brake-lining supplier to U.S. automakers, February 2002

Unlike most companies we know, Toyota and Honda take the trouble to learn all they can about their suppliers. They believe they can create the foundations for partnerships only if they know as much about their vendors as the vendors know about themselves. They don’t cut corners while figuring out the operations and cultures of the firms they do business with. Toyota uses the terms *genchi genbutsu* or *gemba* (actual location and actual parts or materials) to describe the practice of sending executives to see and understand for themselves how suppliers work. Honda uses a similar approach, and both companies insist that managers at all levels—right up to their presidents—study suppliers firsthand to understand them.

The process can take a while, but it usually proves to be valuable for both the suppliers and the manufacturers. In 1987, when Honda of America was toying with the idea of using Atlantic Tool and Die as a source for stamping and welding jobs, it sent one of its engineers to spend a year with the Cleveland-based company. For 12 months, the middle manager studied the way the organization worked, collected data and facts, and informally shared the findings with his counterparts at Atlantic. Over time, they agreed with the Honda engineer’s conclusions and implemented many of his suggestions, which led to marked improvements on the shop floor. About six months into his stay, the Honda engineer asked Atlantic’s top managers to show him the company’s books, which they reluctantly agreed to do. By the time the Honda engineer left, he knew almost everything about Atlantic’s operations and cost structure.

That knowledge proved useful when the two companies started doing business together in 1988. Japanese companies traditionally work backward when setting prices for the components and services they buy. Instead of follow-

we found that although the two companies used different tools, they had created strikingly similar scaffoldings. Experts usually emphasize the use of devices like target pricing, but we believe Toyota and Honda have built great supplier relationships by following six distinct steps: First, they understand how their suppliers work. Second, they turn supplier rivalry into opportunity. Third, they supervise their vendors. Fourth, they develop their suppliers’ technical capabilities. Fifth, they share information intensively but selectively. And sixth, they conduct joint improvement activities. Some of these steps support others. For example, if manufacturers deploy controls without creating a foundation of understanding, that will lead to gaming behavior by suppliers. We therefore organized the six steps as a supplier-partnering hierarchy, with one leading to the next. Toyota and Honda have succeeded not because they use one or two of these elements but because they use all six together as a system. (See the exhibit “The Supplier-Partnering Hierarchy.”)

Most vendors believe that Toyota and Honda are their best—and toughest—customers. The two companies set high standards and expect their partners to rise to meet them. However, the carmakers help suppliers fulfill those expectations. Clearly, Toyota and Honda want to maximize profits, but not at the expense of their suppliers. As Taiichi Ohno, who created the Toyota Production System, has said, “The achievement of business performance by the parent company through bullying suppliers is totally alien to the spirit of the Toyota Production System.” The key word in that statement is “parent,” which signals a long-term relationship that involves trust and mutual well-being. At the same time, the relationship connotes discipline and the expectation of improvement and growth. Take, for example, Toyota’s Construction of Cost Competitiveness for the 21st Century (CCC21) program, which aims at a 30% reduction in the prices of 170 parts that the company will buy for its next generation of vehicles. During our interviews, we didn’t hear vendors decrying CCC21 as unfair. Instead, they wanted to give Toyota the price reductions it sought. They believed Toyota would help them achieve that target by making their manufacturing processes leaner, and because of Toyota’s tough love, they would become more competitive—and more profitable—in the future.

*Toyota and Honda believe they can create the foundations for partnerships only if they know as much about their vendors as the vendors know about themselves.*

ing the American practice of calculating costs, adding a profit margin, and setting the product's price, Japanese executives start with the price of the product they believe the market can bear. Then they figure out the costs they can incur to make the desired profits on that item. That practice allows the executives to set target prices: the amounts they can afford to pay suppliers for components and services given the budget for the product. Accordingly, when Honda submitted the target prices for the first jobs it gave Atlantic, both firms knew the supplier would make a profit. It would be a small profit, though, because Honda expected Atlantic to increase its profit margin by cutting costs over time.

A little empathy breeds a great deal of mutual understanding. Atlantic signed on partly because it believed Honda was acting fairly by allowing it to make a profit on the first deals. Because of the Honda engineer's visit, the supplier also felt confident that, with Honda's assistance, it would be able to reduce its costs. Once Atlantic had displayed its ability to handle Honda's orders, the automaker recommended the company to its other suppliers. As a result, Atlantic's business rose steadily during the next five years. It's interesting to note that around the same time, Atlantic attained the coveted Spear 1 supplier status at GM. That designation, GM claimed, would surely lead to more business with the manufacturer and its suppliers. But soon thereafter, GM reduced its orders with Atlantic without explanation. The supplier didn't get more business from GM during the next two years, and the partnership implied by the Spear 1 status never came to fruition.

### Turn Supplier Rivalry into Opportunity

"Chrysler was our best customer, and we would break our back for them. Now we feel we're just another supplier. [It has] put us in a bucket with everyone else, and we feel like any other vendor."

—Senior executive, supplier to Daimler-Chrysler, July 1999

For all the feel-good talk about developing manufacturer-supplier partnerships, Western executives still believe that the keiretsu system is, at its core, inefficient and inflexible. They assume that in the keiretsu model, companies are locked into buying components from specific suppliers, a practice that leads to addi-

tional costs and technological compromises. We find that assumption to be incorrect. Neither Toyota nor Honda depends on a single source for anything; both develop two to three suppliers for every component or raw material they buy. They may not want ten sources, as an American business would, but they encourage competition between vendors right from the product development stage. For example, Toyota asked several suppliers in North America to design tires for each of its vehicle programs. It evaluated the performance of the tires based on the suppliers' data as well as Toyota's road tests and awarded contracts to the best vendors. The selected suppliers received contracts for the life of a model, but if a supplier's performance slipped, Toyota would award the next contract to a competitor. If the supplier's performance improved, Toyota might give it a chance to win another program and regain its market share.

There is a key difference between the way American and Japanese companies fuel the rivalry between their suppliers. U.S. manufacturers set vendors against each other and then do business with the last supplier standing. Toyota and Honda also spark competition between vendors—especially when there is none—but only with the support of their existing suppliers. In 1988, when Toyota decided to make cars in Kentucky, it picked Johnson Controls to supply seats. Johnson Controls wanted to expand its nearby facility, but Toyota stipulated that it shouldn't, partly because an expansion would require a large investment and eat into the supplier's profits. Instead, the Japanese manufacturer challenged Johnson Controls to make more seats in an existing building. That seemed impossible at first, but with the help of Toyota's lean-manufacturing experts, the supplier restructured its shop floor, slashed inventories, and was able to make seats for Toyota in the existing space. That experience helped the American vendor understand that it wasn't enough to deliver seats just in time; it had to use a system that would continually reduce its costs and improve quality. Such an approach would better align Johnson Controls' operating philosophy with Toyota's.

The relationship between manufacturer and supplier didn't end there. Six years later, when Toyota wanted to develop another source of seats, it refused to turn to another

American manufacturer. Instead, it asked Johnson Controls if it was interested in entering into a joint venture with Toyota's biggest seat supplier in Japan, Araco, which was planning to enter the U.S. market. In 1987, Johnson Controls and Araco set up an American joint venture, Trim Masters, in which each held 40% of the equity and Toyota held 20%. Johnson Controls created a firewall so that Trim Masters would become a competitor in every sense of the word. A decade later, Trim Masters has become Johnson Controls' main rival for Toyota's seats business. In 2003, while Trim Masters had a 32% share of the business, Johnson Controls had a 56% share. Because of its investment in the joint venture, Johnson Controls has benefited from Trim Masters' success. Toyota turned a need to create competition between suppliers into an opportunity to cement its relationship with an existing vendor.

### Supervise Your Suppliers

"[The Big Three] are hall monitors: I have to get from this door to that door, and they ask for my pass. You do everything you can to meet their objectives, but they keep putting barriers in the way."

—*Engineering director, Big Three supplier, April 2001*

Vendors we talk to in Europe, the United States, and Mexico assume that Japanese-style partnerships are relationships between equals. They misconstrue win-win deals to mean that Toyota and Honda trust their suppliers enough to let them do their own thing. But in fact, the two Japanese automakers don't take a hands-off approach; they believe suppliers' roles are too vital for that. They use elaborate systems to measure the way their suppliers work, to set targets for them, and to monitor their performance at all times. Controls are the flip side of the trust that Toyota and Honda have in their suppliers.

Honda, for instance, uses a report card to monitor its core suppliers, some of which may be even second- or third-tier vendors. Unlike most *Fortune* 1,000 companies, which send reports to suppliers annually or biannually, Honda sends reports to its suppliers' top management every month. A typical report has six sections: quality, delivery, quantity delivered, performance history, incident report, and comments. The incident report section has a subcategory for quality and another for delivery.

Honda uses the comments section to communicate how the supplier is doing. We've seen comments like "Keep up the good work" and "Please continue the effort; it is greatly appreciated." Honda also uses this section to highlight problems. For instance, Honda will write, "Label errors recorded on [part description and number]. Countermeasures presented weren't adequate."

Honda expects its core suppliers to meet all their targets on metrics like quality and delivery. If a vendor misses a target, the company reacts immediately. In early 1998, a tier-one supplier didn't meet an on-time-delivery target. Within hours of missing its deadline, the vendor came under intense scrutiny from Honda. It had to explain to the manufacturer how it would try to find the causes, how long that might take, and the possible measures it would employ to rectify the situation. Until it did that, the supplier had to promise to add extra shifts at its own cost to expedite order delivery. Both Toyota and Honda teach suppliers to take every problem seriously and to use problem-solving methodologies that uncover root causes. If suppliers aren't able to identify the causes, the manufacturers immediately send teams to help them. The manufacturers' engineers will facilitate the troubleshooting process, but the suppliers' engineers must execute the changes.

In contrast with most American companies, Toyota and Honda expect their suppliers' senior managers to get involved whenever issues arise. That expectation often causes problems. For example, in 1997, when a North American supplier ran into a design-related quality issue, the vice president of the Toyota Technical Center immediately invited his counterpart for a visit to discuss the matter. When the executive arrived, it became clear that he didn't understand the problem or its causes. "I don't get into that kind of detail," he stated. He was apologetic about the problem, however, and firmly assured his counterpart that he would take care of it. But that level of involvement wasn't enough for Toyota's managers. The Technical Center vice president asked the American executive to go and see for himself what the glitches were and return to discuss solutions when he understood the issues. Around the same time, Toyota found a quality problem with wire harnesses that Yazaki Corporation had supplied. The vendor's president flew to



the Georgetown, Kentucky, plant and spent time on the shop floor observing how Toyota's workers assembled the harnesses. Only after the executive personally understood the situation did Yazaki formally present to Toyota the countermeasures it had already taken to fix the problem.

### Develop Compatible Technical Capabilities

"[The term] 'supplier development' gives the impression that suppliers need to be developed. The reality is that we suppliers generally develop [the American automobile manufacturers'] people. They come in and tell us with an iron hand how to run our business, and we then have to train them about what we do!"

—*Managing director, supplier to one of the Big Three, August 1999*

The notion of sourcing components from low-wage countries in Asia fascinates Western companies. Many U.S. automakers and their suppliers have set multibillion-dollar targets for purchasing components from China as if that would be an accomplishment in itself. That raises the question: Why haven't Toyota and Honda switched to Chinese and Indian suppliers, too? According to our research, neither company sources very much from those countries primarily because suppliers there offer them only wage savings. That isn't enough for Toyota and Honda, which believe that suppliers' innovation capabilities are more important than their wage costs.

Toyota and Honda have invested heavily in improving the ability of their first-tier vendors to develop products. While their longtime suppliers like Denso, Aisin, and Araco can design components for the carmakers independently, North American vendors still don't know the manufacturers well enough to do so. For example, tires are critical to a vehicle's comfort, safety, handling, and noise level, but American vendors complain that Toyota and Honda give them vague specifications for new tires. Honda doesn't spell out the level of resistance it expects from a tire; it will only say that the tire has to have the right "feel"—a characteristic that is hard to quantify—and that it will be adjusted as the vehicle is designed. Toyota's engineers have developed a special vocabulary to describe the effect of tires on passengers. For instance, they use *gotsu gotsu* to refer to the low-frequency, high-impact motions tires trans-

mit to passengers' lower backs and *buru buru* to describe the high-frequency, low-impact vibrations they feel in their belly. Toyota's engineers expect suppliers to understand what they are talking about and to identify solutions to problems the engineers describe. Until vendors learn to understand the terminology that Toyota and Honda use and are able to translate those vague requirements into design solutions, they can't develop new products for them.

That's why both companies have created guest engineer programs. Toyota and Honda ask first-tier suppliers to send several of their design engineers to the manufacturers' offices, where they work alongside the parent companies' engineers for two to three years. Eventually, the suppliers' engineers will understand the development process and come up with design ideas for Toyota and Honda. Meanwhile, the manufacturers have helped vendors by setting up learning links, forged by moving workers or launching transnational product development projects. For instance, since Toyota works with Denso in Japan, technology and knowledge transfers take place from Toyota's Japan operations to the Toyota Technical Center in Michigan and from Denso in Japan to Denso in Southfield, Michigan. Then the Toyota Technical Center and Denso work together to develop components for the U.S. market.

Toyota and Honda have also created checklists with hundreds of measurable characteristics for each component. American suppliers often don't have the data the Japanese companies demand because other manufacturers don't ask for them. Toyota and Honda start the product development process with their suppliers on-site by teaching them how to collect data. For example, Toyota expects precise data on the tolerances that the supplier's equipment can hold so it can design the product appropriately. One of its American suppliers didn't have that information for a component because it hadn't measured those parameters for decades. When Toyota discovered that, it helped the supplier set up a data collection system before the two companies figured out ways to improve the process. Clearly, as suppliers develop the capabilities to meet the Japanese manufacturers' requirements for data and design, they become more valuable to them than low-cost vendors without those capabilities could be.

*Toyota and Honda don't source from low-wage countries much; their suppliers' innovation capabilities are more important than their wage costs.*

*The two Japanese companies know that sharing a lot of information with everyone ensures that no one will have the right information when it's needed.*

### Share Information Intensively but Selectively

"There's a danger in training [Chrysler's engineers]. Our people are very open, and they will tell our customers everything. They don't know that Chrysler's engineers later use that against us: 'So-and-so said you can do that in a week' [and that sort of thing]."

—*Director of engineering, Chrysler supplier, August 1999*

When Chrysler tried to build an American keiretsu in the early 1990s (see Jeffrey H. Dyer, "How Chrysler Created an American Keiretsu," HBR July–August 1996), it shared reams of data and held numerous meetings with suppliers. Chrysler's philosophy seemed to be, "If we inundate vendors with information and keep talking to them intensely, they will feel like partners." Toyota and Honda, however, believe in communicating and sharing information with suppliers selectively and in a structured fashion. Meetings have clear agendas and specific times and places, and there are rigid formats for information sharing with each supplier. The two Japanese companies know that sharing a lot of information with everyone ensures that no one will have the right information when it's needed.

Toyota and Honda share information carefully when they're developing new products with their suppliers. Toyota, for instance, divides components into two categories: those that vendors can design by themselves and those that must be developed at Toyota. The first category includes floor consoles, sunroofs, mirrors, locks, and other small components. Suppliers can design those components without much interaction with Toyota's engineers because the parts work relatively independent of the rest of the vehicle. The second category includes parts that interface with the sheet metal and trim of the body. Toyota must design these components more collaboratively with suppliers. It insists that suppliers develop the parts on Toyota's premises in close consultation with the manufacturer's engineers. At the Toyota Technical Center, the "design in" room houses suppliers who work in the same room on the same project. They design components into new vehicles using Toyota's CAD systems. Suppliers have to work at the Technical Center because Toyota gives them a lot of proprietary information, and they need to work hand in hand with Toyota engineers, es-

pecially during the early phases of a project.

The same principle—that inundating people with data diminishes focus while targeted information leads to results—extends to strategy. Honda uses only one top management meeting, or *jikon*, to share plans with each supplier. The meetings involve a Honda team—usually two vice presidents of supplier management and several assistant vice presidents—and a supplier team. The *jikon* happen within three months of the end of the fiscal year, which is when most suppliers make investment decisions and other strategic plans. Only core suppliers participate in the meetings, which take place at the regional and global levels. Honda invites one supplier from each region to the global *jikon* in Tokyo every year; it held one-on-one meetings with 35 North American suppliers in 2003. The discussions don't extend to operational matters but instead cover only top-level strategic issues. Honda tells the suppliers what kinds of products it intends to introduce and what types of markets it plans to cultivate in the coming years. The company then discusses the supplier's strategic direction in terms of technology, globalization, major investments (such as capital goods and plant expansion), and ideas about new products. The meetings also cover improvements that will be necessary in the quality, cost, and delivery of the vendor's products.

### Conduct Joint Improvement Activities

"We're a showcase supplier for Toyota. Toyota improves its systems and shows how [implementing those changes will] improve [your production system, too]. We had discussions with [one of the Big Three's] so-called continuous improvement experts from Purchasing. He wanted to see what we were doing but didn't have much to add."

—*Sales director, Big Three supplier, July 1999*

Many American suppliers celebrated when they first received business from Toyota or Honda. They knew that in addition to new business, they would get opportunities to learn, to improve, and to enhance their reputations with other customers. Because Toyota and Honda are models of lean management, they bring about all-around improvements in their suppliers.

Honda, for example, has stationed a number of engineers in the United States, and they

lead *kaizen* (continuous improvement) events at suppliers' facilities. While other automakers devote one day to a week to developing suppliers, Honda commits 13 weeks to its development program, which entails the creation of a model production line in the supplier's factory. Honda's engineers believe that the company's goals extend beyond technical consulting; the aim is to open communication channels and create relationships. That's why Honda's engineers stay in touch with suppliers long after returning to their own plants. That dedication to follow-through pays off: Honda's Best Practices program has increased suppliers' productivity by about 50%, improved quality by 30%, and reduced costs by 7%. That isn't entirely altruistic; suppliers have to share 50% of the cost savings with Honda. The reduced costs also become the baseline for new contracts that suppliers sign with Honda. However, the suppliers benefit, too, because they can apply what they have learned to their other product lines for Honda and its competitors and keep all those cost savings.

Similarly, Toyota teaches suppliers its famed Toyota Production System. The company has also set up *jishuken*, or study group teams, as a way to help the manufacturer and its suppliers learn together how to improve operations. Executives and engineers who work for Toyota and its suppliers meet under the direction of a Toyota sensei and go from plant to plant improving suppliers' processes. These activities, which are orchestrated in some cases by the Bluegrass Automotive Manufacturers Association (BAMA), Toyota's North American supplier group, give suppliers' managers hands-on experience with the Toyota Production System in different types of environments. The activities also create bonds among Toyota's suppliers because representatives of the vendors get together all through the year and share practices, information, and concerns.

In addition, BAMA provides support to suppliers that choose to help themselves. For example, in 2000, when Tenneco's Smithville, Tennessee, exhaust-systems plant decided to initiate a lean-manufacturing transformation, it turned to BAMA for help. Through the asso-

ciation, Tenneco's managers identified and visited some of the best lean suppliers in the United States. That experience helped them develop a vision. The managers then identified a lean-manufacturing expert within the company and went through a one-year transformation that included changing the plant layout. By 2002, the Tenneco plant had reduced head count by 39%, improved direct labor efficiency by 92%, eliminated \$5 million of inventory, reduced defects in materials from 638 to 44 parts per million, and won a Toyota award for quality and delivery performance. Tenneco was a great student, but it also had a good mentor in BAMA.

• • •

The first step Toyota and Honda took to create lean enterprises was to develop suppliers to fill their North American needs. Once the foundation was in place, they moved on to the task of connecting suppliers into extended lean enterprises. This is still a work in progress. By establishing the six levels of the supplier-partnering hierarchy, Toyota and Honda have created a base on which their suppliers can continuously learn and get better. Many Toyota and Honda programs that appear to be short-term cost-cutting moves are actually experiments in learning. For example, Toyota thinks of its CCC21 initiative not as a price reduction program but as a way of creating a challenging environment that motivates its suppliers to improve. It's well aware that to achieve a 30% reduction in costs, vendors will have to question every operating assumption.

To be successful, an extended lean enterprise must have leadership from the manufacturer, partnerships between the manufacturer and suppliers, a culture of continuous improvement, and joint learning among the companies in the supplier network. That's what Toyota and Honda are ultimately trying to achieve through their remade-in-America keiretsu.

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