To: World of Engineering Management students

From: Professor Danny Samson

ENGM90014 The World of Engineering Management

Group Assignment

In your assigned syndicate groups, you are to study part of the world’s automotive industry, using some materials that we will provide you with, and other materials from your research.

In particular, trace the history of Toyota. Compare its evolution with at least one of the American companies, GM and Ford. Use frameworks from our subject such as in strategy, innovation, quality, Lean, best practices, manufacturing strategy, in your work.

Consider also the advances made by Tesla in recent years, and the new technology opportunity.

To get your reading started, two articles from Fortune Magazine are attached below in this file, and Paul Adler’s article from Harvard Business Review will be very useful. I am also including below, a six part case study I wrote about how Toyota managed its plant closure in Australia.

You should independently find at least five other sources of information. This can include Toyota’s own website, alongside similar sources for GM or   
Ford, and academic and business sources.

Set out your report with an executive summary, an introduction, a ‘body’ where you make your main points (classified with headings), and conclusions, followed by listing your references.

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| The Tragedy of General Motors  The Detroit giant is a weird, scarred combination: a carmaker doing poorly, and an insurance company engulfed by its obligations. It's heading for a wreck -- which is why CEO Rick Wagoner has the toughest job in business.  [[Fortune Magazine](https://archive.fortune.com/magazines/fortune)](https://archive.fortune.com/magazines/fortune)  By [Carol Loomis](mailto:cloomis@fortunemail.com)  February 6, 2006: 12:09 PM EST    (FORTUNE Magazine) - It is the instinctive wish of most American businesspeople, even those unlikely to be directly affected, that General Motors not go bankrupt. True, some people will say, "They had it coming to them." But the majority will be more practical, telling themselves that the company is so central to the economy, so sprawling in its commercial reach, that bankruptcy--"going into chapter," as restructuring folks say--is ominous almost beyond contemplation. And yet the evidence points, with increasing certitude, to bankruptcy. Rick Wagoner, GM's 53-year-old chairman and CEO, may say, as he did in a January interview with FORTUNE in his aerie of an office high above the Detroit River, "I know that things will turn around." But he cannot know that. He may not, deep down, even believe it himself.  Bankruptcy isn't going to occur next week. But down the road--say, past 2006 --its probability is high. That point of view seems supported by the opinions of the bond-rating agencies, which troubled companies must keep informed and which become virtual insiders in their understanding of a company's finances and operations. In recent months both Moody's and Standard & Poor's have made increasingly grim statements, bald in their talk of bankruptcy and laden with doubts that [GM](https://archive.fortune.com/quote/quote.html?symb=GM) ([Research](http://cnnfn.investor.reuters.com/Reports.aspx?ticker=GM)) can turn around its reeling North American auto operations, now reduced to an embarrassing market share of 26%.   |  |  |  | | --- | --- | --- | | |  | | --- | | GM chairman and CEO Rick Wagoner | | **GM chairman and CEO Rick Wagoner** | | |  |   In that percentage lies a harrowing, and maybe intractable, revenue problem. Says one GM executive: "There's no fix for us unless we get revenues stabilized."  Nonetheless, Wagoner and crew must also deal with the full range of GM's problems, and they add up to a Hummer-sized load. The company lost $8.6 billion last year, burning up billions of dollars in North America, earning too little back overseas. Its product mix in the U.S., heavily weighted toward trucks, pickups, and SUVs, is on the wrong side of gas prices. It has a finance subsidiary, GMAC, whose majority interest it needs to sell to keep that business healthy and itself in cash--and so far, no buyer has emerged. It is inextricably entangled in the bankruptcy of its biggest supplier, Delphi. In that imbroglio, as in countless others, it is up against a formidable and sometimes militant union whose ability to accept the full reality of GM's problems is not assured. The company is even under investigation by the SEC for accounting sins, as yet unrevealed.  And gravely, it is burdened by health costs, which it supplies for a population bigger than Detroit's--that is, for a total of 1.1 million employees, retirees, and dependents. Its thriving Japanese competitors, such as [Toyota](https://archive.fortune.com/quote/quote.html?symb=TM) ([Research](http://cnnfn.investor.reuters.com/Reports.aspx?ticker=TM)), pay health benefits for their U.S. active employees and dependents too. But Toyota does not have GM's retiree health burden, a mountain that at year-end totaled an unfunded $64 billion and that, in annual effect on the bottom line, adds about $1,300 to the cost of every car and truck GM makes in the U.S.  Wagoner is exultant that he and the UAW gruelingly managed last year to make a deal that, if blessed by a federal judge, will cut GM's unfunded liability by around $15 billion and pare cash outlays as well. But that will still leave Wagoner facing a colossal competitive disadvantage. The cost is not his fault. Rather, it is a legacy dumped on him by CEOs of decades ago who gained a certain amount of wage restraint from the union--and labor peace for their own terms of office--by granting retiree health benefits that had neither large, immediate cash costs nor, under the accounting rules then applying, much effect on the bottom line. Today, with health-care costs exploding and the accounting rules stiffened, this mess has come home to roost. It is the problem, says Wagoner (almost certainly giving too little weight to his shortage of revenues), that more than anything else "affects the future viability of GM."  In character, today's GM is a weird and painfully scarred combination of businesses. It is a car company doing poorly, and it is an insurance company engulfed by obligations way beyond its ability to pay. Such an enterprise probably cannot escape bankruptcy. The securities markets flash their warnings with regularity. The prices of GM's bonds have fallen severely, and its stock plunged in December to below $19, the lowest price since 1982. In early February the stock was $23. Were it not for GM's dividend, $2 annually, the price would surely be lower than it is.  Is there anything optimistic to say? Well, it is important to remember that giant auto companies have been turned around before. In 1980, aided by $1.5 billion in loan guarantees from the U.S. government and his own pitchman routines on television, Lee Iacocca brought Chrysler back from the abyss. Nearly 20 years later Carlos Ghosn, an improbable mixture of Lebanese blood, Brazilian birth, French education, and American business experience, grabbed tight hold of Japan's sinking Nissan Motor and restored it to industry prominence.  Yet these rescue jobs surely pale in comparison to what it would take to turn around General Motors, this giant so large that in the FORTUNE 500's first half-century it ranked No. 1 on the list in 37 years. (In our last list it was No. 3.) One Wall Streeter deeply familiar with the company recently stated the challenge starkly: "I would say that turning GM around is a harder logistical and managerial task than the invasion of Iraq."  This same Wall Streeter is not kind to the GM generals charged with the rescue job. Describing the company as a "sclerotic bureaucracy," he says a good remedy might be firing the top five people and replacing them with outsiders. A less acid form of criticism has been laid on by the camp of Kirk Kerkorian, whose Tracinda Corp. owns just under 10% of GM's stock. In January, Kerkorian's advisor Jerry York, a turnaround veteran himself (at Iacocca's Chrysler and Lou Gerstner's IBM), gave a long luncheon speech at the Detroit auto show that accused GM's executives of lacking "urgency" and "sense of purpose." York's reason for growling: Kerkorian's losses, about $172 million of them realized at this point, with the rest--another $223 million--sitting as unrealized losses on his books. York and Wagoner have talked about York's going on the GM board, but--as of early February, at least--they had not had a meeting of the minds. Maybe, one might guess, the Kerkorian camp has wanted both board representation and complete freedom to sell its stock.  That could have been a problem because GM's general counsel sent a memo last May to a sizable layer of GM executives telling them--for reasons he left quite vague--that they should refrain throughout 2005 from either buying or selling the company's stock. The prohibition, which still hasn't been lifted, is highly unusual because insiders normally have "windows" of time in which they can legally trade. In this instance, perhaps the insiders' deep understanding of GM's problems simply makes it unfair, and therefore also legally perilous, for them to be trafficking in its stock.  Wagoner, in any case, hotly disputes anybody's notion that GM lacks a sense of urgency. There's a "boulder hanging over our heads," he says, and it's causing the place to accelerate product introductions (like new models of its star Silverado and Sierra pickups, racing into showrooms soon) and otherwise operate with "breakneck speed." No doubt thinking back on GM's 98 years of existence--and to the pantheon of Alfred P. Sloan, Charles Kettering, and lesser gods--he strikes a poignant personal note as well: "Nobody's got a bigger stake in this than I do. I have this little sort of burden of history. I'm not going to be the guy that doesn't get this company going in the right direction."  If energy alone could do it, Wagoner might pull it off. Once a basketball player at Duke, he is tall and broad-shouldered, strong enough in fact to be at least metaphorically matched to the massive corporate weight he carries. A GM-er for the 29 years of his working life and CEO since 2000, he was in shirtsleeves as he talked to FORTUNE in January. Surrounding him were the usual suspects, miniature models of cars. He was animated to a degree that amazed one of his public relations people, who wasn't sure she'd ever seen him quite so expansive. And on his mind was the whole of the GM scene, including the need to keep growing in China, to build great products, to keep that boulder off his head.  Naturally, boulder evasion means that GM is deeply and broadly into cost cutting: It is closing plants to kill its excess capacity, terminating many thousands of people, negotiating with the UAW to free itself at least partially from the nearly un-American JOBS bank, in which laid-off union members get paid for not working. How many people are in the JOBS bank? Analysts ask that repeatedly and are refused an answer, probably because GM thinks nothing can be gained by hanging a number out there that Wall Street and the press can beam their attention on. But Sean McAlinden, chief economist of the Center for Automotive Research, thinks there were 5,200 employees in the JOBS bank at the end of 2005. He figures the annual cost of each to GM is at least $100,000.  Globally GM is once again striving to take advantage of its huge scale to reduce engineering and parts costs (it has paid lip service to this goal before). In the U.S. it can't easily cut brands----dealer franchise laws make that almost impossible--and that's a vise, because the eight brands it sells (Buick, Cadillac, Chevrolet, GMC, Hummer, Pontiac, Saab, and Saturn) are a big crowd for a 26% market share. At the least, the company is working to wedge Pontiac, Buick, and GMC into the same dealerships----under the same "rooftops"--and to sell within them, for instance, only one minivan model rather than two. GM's sales and marketing head for North America, Mark LaNeve, calls the cutting of each independent dealer a "little soap opera," in which entrepreneurs, in some cases with kids they expected to inherit their business, give up their turf by inches.  Perhaps most important for cost cutting at GM, Wagoner has just put a renowned chopper, Frederick "Fritz" Henderson, 47, into the job of chief financial officer. Henderson, a mustachioed and candid speed-talker, came from GM's European operations, where he reduced (though didn't eliminate) losses and got to be known as Chainsaw Fritz. He considers cost cutting an unending battle and approvingly cites the "continuous improvement" that is an integral part of the Toyota culture. In another example of non-arrogance, Henderson listened at a luncheon table, taking notes, as Jerry York gave his January speech. "He's a major shareholder," said Henderson later. "It's important that we listen to him." But he scoffed at York's claim that GM is blind to the depth of its troubles: "I'm in crisis mode and have been for years."  In all that GM is doing, there is a bleak awareness that no companies have ever turned around because of cost cutting alone. The essential partner is revenue growth--and as those losses in market share show, that has been the crucible for GM. In product design, it lost the magic long ago. "They need irresistibility and head-turners," says one car buff, "and they haven't had them." The man now on that case is product-development boss Bob Lutz, 74, who, after retiring from Chrysler, was hired by Wagoner in 2001. Tall, elegantly dressed, and outspoken, he is treated like a rock star at auto shows, often attracting more attention than his cars. At the Detroit show in January, touring GM's space with reporters, he was pleased to point out classy-looking car interiors--"some of GM's used to be grotesque," he said--and a level of fit and finishes that he judged superb. A reporter needled him: "Bob, I miss those bad fits, those gaps, that you had a while back. I used to store my quarters for tolls in those."  Lutz--and all at GM--are plainly battling the past, when many buyers gave up on its vehicles and turned to foreign cars. Today, GM has an enormous perception problem: a belief by too many U.S. consumers--particularly in the East, West, and some of the South, which pretty much leaves GM hugging the Midwest--that it doesn't make cars as reliable as those of foreign producers. That was indisputably true once. The current evidence, though, is mixed: Consumer Reports, a bible for many carbuyers, rates GM's improvements as "inconsistent" and ranks most of its cars as also-rans; J.D. Power, however, a leading arbiter of quality, gives many of its cars top grades. Meanwhile, GM people haul out comparison charts showing, for example, that a Chevrolet Malibu outdoes Toyota's Camry in just about every performance rating going, yet costs $2,640 less. Customers shrug their shoulders and keep on buying Camrys--their memories are long, and their motivation for returning to GM small.  The gist of GM's sales problem is summed up by Don Freda, a suburban New Yorker who has run an independent auto-repair shop for 52 years. What, he is asked, do you think about the quality of GM's cars these days? "They're very good," he answers. "They don't break like they used to." Then, immediately, "But nobody will buy them."  So it's no surprise that GM has been the impresario of incentives since 2001, when it immediately followed up 9/11 by launching the incentive program called Keep America Rolling. After that, the come-ons never ceased, so buyers quickly realized it would be idiotic to pay anything close to MSRP (manufacturer's suggested retail price). Last spring, when Wagoner personally took over the running of the North American business, he said that GM would reduce the use of incentives. But that pullback wasn't immediate: GM needed revenues in 2005, no matter their quality, and it kept on dishing the incentives out.  It was not until this January that GM officially announced a new pricing program, built on the thought of "selling the product, not the deal." The program cuts the MSRP on most of GM's cars, a change aimed at still giving the buyer an attractive price, but not by way of ballyhooed incentives. The price of a Tahoe SUV, for example, is dropping from a 2005 level of $36,790 to $32,990 (an amount that Wagoner says could still be reduced by ad hoc incentives). A big reason for the change is that about two-thirds of carbuyers these days do comparison shopping on the Internet, where GM feels it must show a "real" price, as opposed to the fictional prices--before incentives--that it was presenting before. As still another part of its new marketing program, GM is planning to cut back on its large-scale sales to rental-car companies, which not only buy at a sharp discount but also quickly flip their vehicles into the resale market and thereby hurt the residual values of GM cars. In all this, it is important to keep remembering that GM desperately needs to at least stabilize its market share and simultaneously to extract profits from what it sells. Whether this plan will do any better than the others now discarded is deeply uncertain.  Acknowledging the risk--"The jury's out," he says--Wagoner nonetheless expresses confidence because he believes there is "inherent goodness" in GM's products that the market will begin to recognize. But he also knows that every car manufacturer has a provincial view of its own prospects: "We're all guilty," he says. "We go through our design studio and go, 'Wow, we've got great products. They're so much better than what we had. This is going to turn things.' What you forget is that the same discussion is going on in every design studio around the world." That doesn't necessarily make you wrong in your expectations, he says. But in the end, it's "a bet." And you don't know--can't know--whether this time it's going to bring in the revenue.  That's a sweat-out matter for GM in 2006. As the year begins, the world is also focused on the company's "liquidity"--its store of ready assets that would allow it to withstand further operating blows, should they materialize. On the balance sheet of its auto business at year-end, GM had $20.5 billion in liquid assets, made up of cash, marketable securities, and short-term assets in a VEBA--a "voluntary employees beneficiary association" that holds money dedicated to the payment of health costs. GM calls this amount of liquidity "strong." But this is a company whose auto operations had a negative cash flow last year of nearly $6 billion. Suppose that repeats this year? Or suppose--Wagoner himself volunteers this--that the price of gas goes to $3 a gallon? Or that industry sales of autos drop by, say, 5%, or there's an outright recession? Besides, GM can't possibly spend itself down to its last dollar. Jerry York figures that GM needs at least $5 billion at any given moment just to operate, and others say the amount might be $10 billion.  Success by GM in selling just over half of its finance subsidiary, GMAC, would help GM's liquidity--though that really wasn't the impetus for putting it on the market. Here are GMAC's finer qualities: It is a well-run company; a good earner, with profits of $2.83 billion in 2005 (before a goodwill write-off of $440 million) on about $22 billion in book value; and a dutiful corporate child that paid $2.5 billion in 2005 dividends to its parent. So why would GM be unloading this treasure? Because GMAC's raw material is money, and--thanks to its scruffy parent--it is losing access to its raw material. The issue here is that GMAC's credit ratings are linked to GM's and therefore have been repeatedly lowered. That means GMAC is no longer welcome--as it devoutly wishes to be--in the commercial-paper market, which is in effect a deep-pocketed bank with good interest rates. So GMAC has been funding itself more expensively, by selling off its loans or borrowing against them.  A sale of, say, 51% of GMAC to a financially strong buyer would presumably raise its ratings and put it right back in the commercial-paper market. As to what the sale might deliver to GM, that's a mystery. A deal has dragged, partly because prospective buyers are leery of the financial consequences should they make a purchase and then see their co-owner, GM, go bankrupt. There's also a downbeat qualification about the money that GM might get: The company carries out intracompany transactions with GMAC that ordinarily leave GM a net debtor. It is very likely that any buyer of GMAC, not wanting to be owed by GM, would insist that those debts be paid off as part of any transaction. That would reduce GM's take.  Moody's has said unequivocally that "the sale proceeds are critical to GM maintaining adequate liquidity." Standard & Poor's wants this deal done too. But it questions just how much GM would benefit. Said S&P's Robert Schulz in January: "GM will be giving up half of an asset that's provided a lot of earnings. At the end of the day, it's hard for us to get excited about that."  Another boost to GM's liquidity could be gained by the company's embracing what Jerry York has labeled "equality of sacrifice"--that is, compensation cuts for most of its non-union constituencies. Such moves, for example, might cut the pay of GM's directors, who include such corporate folk as lead director George Fisher, retired CEO of Kodak, and Stanley O'Neal, CEO of Merrill Lynch. Base pay for a board member annually is $200,000, though each must put $140,000 of that into GM stock--an investment plan that hasn't worked out too well lately. Among the people escaping the entire GM flameout, it should be noted, is A.G. Lafley, CEO of Procter & Gamble, who exited as a director last spring. Given that a GM bankruptcy would no doubt put egg on the face of every board member, Lafley's departure possibly qualifies as Shrewdest Move by a Director in 2005.  York also wants GM's executives to cut their pay. Around headquarters in Detroit, there is muttering about this, since it would be a second blow: No bonuses were paid for 2005. In addition, the executives at the very top have definitely bled with the stock, because they are required by the board to hold multiples of their base salary in GM shares. The requirement for Wagoner works off his 2004 base salary, $2.2 million, and stipulates that he should own seven times that amount in stock, which is $15.4 million. Wagoner may have met that goal at one time; a precise answer about that has disappeared into proxy-statement fog. He for sure was still an optimist in March 2005, when he paid $1.5 million to buy 50,000 GM shares at about $30. Today, though, with the stock down closer to $20, he is way shy of the $15.4 million target.  What York sees as truly essential is a 50% cut in the dividend--pain for every shareholder, including himself and Kerkorian. Such a move may be symbolically important. It is not, though, an economic panacea. The dividend is only $1.1 billion annually--against a GM market value, in early February, of about $13 billion. Totally eliminating the dividend would, for example, not even cover one-fifth of GM's annual spending for health care (about $5.7 billion last year). There is another, quite unintuitive, point to be made about the dividend: With bankruptcy certainly a possibility, you could make a case that GM's directors might be doing their dead-level best for the shareholders by continuing to pay the dividend. That is, in a bankruptcy the shareholders are apt to reap nothing; for now, the dividend is something. A corollary to that thought is that any unsecured creditor of GM's who thinks bankruptcy will come should logically be protesting every penny paid to the shareholders, since any outflow of cash is money the bankruptcy estate won't be getting.  For GM, the problem of whether to cut the dividend is huge--in scale, way beyond the $1.1 billion. Were a reduction to be made, there would surely be national, and even global, headlines. That would agitate buyers who are already nervous about GM's viability--who worry, for example, about the company's ability to make good on its warranties. That's an unnecessary worry, but it still exists. It is probably not an overstatement to say that cutting the dividend would be a public relations disaster. On the other hand, not cutting the dividend gives the finger to the UAW, which has already agreed to a "giveback" of health-care benefits and from which GM needs many more concessions. "Why," the UAW is asking, "are we making sacrifices when the shareholders aren't?"  The GM board was scheduled to meet shortly after this issue went to press, and the betting here is that the dividend will be cut. That's because in these intense times, and in anticipation of a contract up for renewal in September 2007, GM desperately needs decent relations with the UAW. Keeping peace with the union right now almost has to outweigh a public relations problem.  The truth is that GM is essentially indentured to the UAW because of the union's power to strike. To that sign of bondage, add another: GM's hourly and salaried employees, present and past, essentially own this company, a fact we will prove by describing some bank accounts. At the end of 2004, the latest date for which figures are available, GM's pension funds (both inside the U.S. and out) had $100 billion in assets--which is wealth belonging to GM's employees, retirees, and dependents. To that you can add $19 billion that GM has put in a dedicated account for retiree health benefits. That makes $119 billion that GM has banked for its employees. In contrast, the shareholders of GM recently owned their grubby $13 billion in market value. That is a bizarre, Alice-in-Autoland result from 98 years in which capitalism supposedly reigned.  The union's leverage over GM affects everything that the company tries to do in cost cutting. The burning example is retiree health benefits, surely a competitive cost disadvantage if there ever was one. At various Berkshire Hathaway meetings, chairman Warren Buffett has envisioned what GM would do if it had contracted many years ago to buy steel at a premium price and had arrived at 2005 needing to get that cost back in line. "It would simply get out of the contract," Buffett has said. GM's retiree health benefits, arrayed against the benefits that the Japanese companies don't provide, are like paying extra for steel. But the odds against GM's breaking this contract are monumental.  That's proved by the halting course of events since early last summer, when Wagoner let it be known that GM proposed to unilaterally change its health plan for retirees so as to cut $20 billion off its liabilities. Legally GM may have been within its rights to do this; at least, that's what some court precedents say. The UAW, though, predictably protested, claiming that the benefits were vested and citing precedents of its own. To have sorted out this argument in court would have taken years that GM didn't have. So a compromise was reached: The UAW would hire Lazard to come into GM (at GM's expense) to determine just how bad its financial condition was. Lazard, whose work was led by Jim Millstein, head of its restructuring team, sent in about 20 people and took months to do its work.  GM wasn't given Lazard's report to read. But one executive thinks he has a good idea what it said. He is Steve Girsky, who until last summer was an all-star auto analyst at Morgan Stanley (where he ridiculed GM's incentive programs), and who then made a high-wire leap into working for GM as Wagoner's roving aide-de-camp. Says Girsky: "Usually the union's perception is that management is making things look worse than they are. This time, when Lazard came back to the union, I think it may have said, 'Management is not exaggerating; in fact, things may be worse than it thinks.'"  So the union did a "giveback," agreeing after some deadline-packed weeks to an intricate change in the retiree health benefits that will hurt the retirees moderately but also require the actives (who ratified the deal) to chip in by giving up some cost-of-living raises they were due. GM gets relief of only about $15 billion in its liabilities, not $20 billion. And its expected cash savings of about $1 billion a year will arrive only slowly. A further stickiness is that the agreement is not yet final. Its fairness must be okayed by a judge, who at a hearing scheduled for March can expect to be asked by at least some retirees why in tarnation they didn't have a say in all this.  Beyond any savings that the new plan ultimately delivers, it provides GM with a psychological lift: A union that detests deadlines and mid-contract negotiations stepped up when pressured and gave something back. Doesn't GM's success here suggest that it could perhaps erase its whole retiree health problem by driving ahead with unilateral actions and dragging the union along? No, says Girsky, absolutely not: "If you have to push to that extreme, you'll be building cars with three wheels. At the end of the day, these guys you're dealing with are the ones who build your products."  Wagoner is impatient with people who want GM to blast ahead on the union front, pushing hard to gain cost savings. "Excuse me," he says he asks them, "were you around in '93, '94, '95, '96, '97, and '98 when we took 16 strikes?" (It sounds as if he might know the exact dates of those strikes as well as he knows the birthdays of his three sons.) He quotes the critics further: "Well, you dolts, don't you know how to deal with the union so it doesn't go out on strike?" And Wagoner grits his teeth and answers, "Gee, I thought the assignment was to get competitive." His bottom line about union negotiations: "There's an art to this thing."  Right now, he and GM are working their art at auto-parts maker Delphi (No. 63 on the last FORTUNE 500 list), in whose arcane crisis GM is inextricably--and dangerously--entangled. The distilled story here is that GM split off Delphi in 1999, retaining an incestuous relationship with it and sticking it with GM-sized wages and benefits that exceed those paid by Delphi's competitors. Delphi ultimately floundered under this weight and hired have-gun-will-travel Robert S. "Steve" Miller as CEO. Out of bullets, Miller put the company into bankruptcy last October and quickly started talking about ways to exit with competitive costs. He then called on the UAW to accept lower wages--for example, he wanted to cut pay for skilled workers by 54%, from $27 an hour to $12.50. (These figures do not include benefits.) Later he took that proposal off the table. But the UAW had by then become so infuriated with both the man and the plan that it refused to negotiate with him.  GM, though, was always in this picture, because it and Delphi are virtually joined at the hip. The separation agreement back in 1999 included deals between GM and the union that made GM contingently liable for post-retirement benefits (mainly pensions and health) owed to certain employees if Delphi ever failed to provide them. With Delphi now in the soup, GM is on the hook--though for how many dollars is uncertain, because other Delphi/GM transactions figure in too. At the latest oracular word on Delphi, GM was estimating a total cost between $3.6 billion (an amount indeed taken as a special pretax charge in 2005) and $12 billion, with the most probable figure toward the low end of that range. Whatever the cost, most of the need for cash will hit GM slowly, because it will be liable for the retirement benefits only as they come due.  In the meantime, the bankruptcy court has told Delphi, GM, and the union to come up with a plan by August for getting Delphi out of bankruptcy. "This is three-hand poker," says Wagoner with a small grin, and the stakes for these struggling parties are way beyond Vegas. Delphi wants to emerge fit for competition; GM wants to hold its bailout costs to a minimum and also extract better prices from Delphi; and the union wants the highest pay possible. Talking about the cardholders at this table, Steve Miller allows that he, Wagoner, and the president of the UAW, Ron Gettelfinger, have the three toughest jobs in Detroit. His listener waits for the kicker, and it's surprising. "The job that's the toughest," Miller says, "is Gettelfinger's, because he has to get elected."  That's technically true--there's an election this June--but UAW incumbents seldom lose. Nevertheless, the whole Delphi affair has so angered the UAW that it could at some point haul off and order a strike. That is a true peril for GM. It cannot stand a strike. GM is hugely dependent on Delphi parts, buying well over $10 billion of them a year. Were there a strike of any duration, GM would not be able to move fast enough to line up alternative sources of supply. A strike would be a killer, enough to push it over the bankruptcy cliff.  That would not be good for the union, whose members would be threatened with cuts in wages, pensions, and above all, health benefits. But unions have called strikes before that didn't make sense, and it could happen again.  There are people who assert that GM should just get the suspense over and file for bankruptcy, thereby paring its liabilities to a manageable size and meanwhile continuing to sell its products. When he is asked about this scenario, Bruce Clark, a senior vice president of Moody's and its lead automobile analyst, turns very serious. "Bankruptcy would have significant costs, which any company would want to weigh," he warns. This is not the airlines, he says, where the dollar risk is a plane ticket, worth maybe a few hundred. With car companies, in sharp contrast, you have big-ticket items, $20,000 and more. "And you have buyers," says Clark, "to whom the warranty period is very important and who have a general expectation that service will be available." In other words, a buyer just might avoid any company in bankruptcy. And avoidance is hardly what GM needs; it's already had enough of that.  There is the big question, naturally, of whether some sort of extraordinary intervention might save GM from bankruptcy. Should it care to make the effort, the UAW would have the means: massive givebacks. Does that sound likely? No.  Then there's the U.S. government, whose bailout ability has been proved often. Clearly Washington could at some point decide that a GM bankruptcy was a nightmare it couldn't face and could step in with a massive infusion of money that would buy the company time--to shrink back, perhaps, to a viable size. Beyond that, what is Washington to do? Urge its citizens to pick up a Malibu with their tax refund? Pass national health insurance with the snap of a finger?  Certainly it won't be President Bush pushing the GM cause. He gave American auto companies the back of his hand in January, telling the Wall Street Journal that they needed to both deal with their costs and come up with "relevant" products. That no doubt mainly referred to hybrids, to which GM is a Johnny-come-lately. There's an implied message in what Bush said--"W to GM: Drop Dead." Which it probably will.  There's a note to be added about our old friend "urgency." It turns out that GM has a program, mentioned in last year's proxy statement and still extant, through which it will match up to $5,000 given by any of its 140,000 U.S. employees (and its directors as well) to a college or university. Matching-gift plans, especially big, splendid ones such as that, are admiringly welcomed by many people in the U.S. But when you are a company running on empty--and GM is--does not the continued existence of that program say that somebody never exactly caught on to what a sense of urgency is all about?  That raises a point made by a fellow--you will see why he doesn't want his name mentioned--in the GM dealer organization: "I can't really believe," he says, "that the people who got GM into this mess are going to be the people who can get GM out."  REPORTER ASSOCIATES Patricia Neering, Oliver Ryan  FEEDBACK cloomis@fortunemail.com [Top of page](https://archive.fortune.com/magazines/fortune/fortune_archive/2006/02/20/8369111/index.htm#TOP)  [From the February 20, 2006 issue](https://archive.fortune.com/magazines/fortune/fortune_archive/2006/02/20/toc.html) |

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| |  |  | | --- | --- | | **FORTUNE:** | | | [**America's Most Admired Companies**](https://money.cnn.com/magazines/fortune/mostadmired/2007/index.html) | [+Full coverage](https://money.cnn.com/magazines/fortune/mostadmired/2007/index.html) |   **Toyota: The Birth of the Prius**  **The world's most admired automaker had to overcome punishing deadlines, skeptical dealers, finicky batteries, and its own risk-averse culture to bring its hybrid to market.**  [[Fortune Magazine](https://money.cnn.com/magazines/fortune)](https://money.cnn.com/magazines/fortune)  **By**[**Alex Taylor III**](javascript:openWindowEmail('ataylor@fortunemail.com');)  February 21, 2006: 10:32 AM EST    New York (FORTUNE Magazine) � In late 1995, six months after Toyota decided to move forward with its revolutionary hybrid, the Prius, and two years before the car was supposed to go into production in Japan, the engineers working on the project had a problem. A big problem.  The first prototypes wouldn't start. "On the computer the hybrid power system worked very well," says Satoshi Ogiso, the team's chief power train engineer. "But simulation is different from seeing if the actual part can work." It took Ogiso and his team more than a month to fix the software and electrical problems that kept the Prius stationary. Then, when they finally got it started, the car motored only a few hundred yards down the test track before coming to a stop.   |  |  |  | | --- | --- | --- | | |  | | --- | | The Prius is Toyota's hottest-selling U.S. car | | **The Prius is Toyota's hottest-selling U.S. car** | | | |  | | --- | | [**More from Fortune**](https://money.cnn.com/magazines/fortune/) | | [Will Mmmhops be a hit?](http://features.blogs.fortune.cnn.com/2014/05/30/hanson-mmmhops/)  [NBA confirms L.A. 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But the story of how it brought the Prius to market -- a tale of technological potholes, impossible demands, and multiple miscalculations -- reveals how a great company can overcome huge obstacles to make the improbable seem inevitable. The gas-electric auto represents only a tiny fraction of the nine million cars and trucks the Japanese company will produce this year. But it is the first vehicle to provide a serious alternative to the internal combustion engine since the Stanley Steamer ran out of steam in 1924. It has become an automotive landmark: a car for the future, designed for a world of scarce oil and surplus greenhouse gases.  For all its success as a high-quality manufacturer, before the Prius, Toyota had never been much of a pioneer. It was known as a "fast follower," a risk-averse company in which process -- the famous Toyota lean production system -- trumped product. Indeed, Toyota, based in rural Aichi prefecture, 200 miles from Tokyo, enjoys depicting itself as a slow-moving company of simple country farmers. But as interviews with company executives in Japan and the U.S. make clear, Toyota is capable of breaking its own rules when it needs to. In rushing the Prius to market, it abandoned its traditional consensus management, as executives resorted to such unusual practices (at least for Toyota) of setting targets and enforcing deadlines that many considered unattainable.  Toyota's push into hybrids is only going to accelerate. Although the Prius first came to life under Hiroshi Okuda and Fujio Cho, Toyota's two previous presidents, new boss Katsuaki Watanabe wants hybrids to become the automotive mainstream. Watanabe, 64, who became the company's top executive last June, has the deferential air of a longtime family retainer. But he is intent on continuing Toyota's explosive growth of the past five years, in which worldwide production rose by nearly half. In an interview earlier this year at company headquarters in Toyota City, he stressed that a key part of his strategy is making hybrids more affordable for consumers. "We need to improve the production engineering and develop better technology in batteries, motors, and inverters," he said. "My quest is to produce a third-generation Prius quickly and cheaply." By early in the next decade he expects Toyota to be selling one million hybrids a year.  Since no other automaker can even approach that quantity, Toyota is way out in front -- an unusual place for a fast follower. "Is Toyota a conservative company?" asks Jeffrey Liker, an engineering professor at the University of Michigan and author of The Toyota Way. "Yes. Does it seem to be very plodding and slow to make changes? Yes. Is it innovative? Remarkably so. Go slow, build on the past, and thoroughly consider all implications of decisions, yet move aggressively to beat the competition to market with exceptional products." If he's right, Toyota is becoming a double threat: the world's finest manufacturer and a truly great innovator. The story of the Prius suggests that he is.  **IGNITION**  The car that became the Prius began life in 1993, when Eiji Toyoda, Toyota's chairman and the patriarch of its ruling family, expressed concern about the future of the automobile. Yoshiro Kimbara, then executive vice president in charge of R&D, heard the rumblings and embarked on a project known as G21 (for global 21st century) to develop a new small car that could be sold worldwide. He set two goals: to develop new production methods and to wring better fuel economy from the traditional internal combustion engine. His target was 47.5 miles per gallon, a little more than 50% better than what the Corolla, Toyota's popular small car, was getting at the time.  By the end of 1993 the development team had determined that higher oil prices and a growing middle class around the world would require the new car to be both roomy and fuel-efficient. Other than that, they were given no guidance. "I was trying to come up with the future direction of the company," says Watanabe, who headed corporate planning at the time. "I didn't have a very specific idea about the vehicle."  Direct responsibility for the project lay with executive vice president Akihiro Wada. To lead the team, Wada went looking for an engineer with the right blend of experience and open-mindedness. He found it in Takeshi Uchiyamada. As Wada, now an advisor to Aisin Seiki, a Toyota brake supplier, explains, "Uchiyamada was originally an expert in noise and vibration control. But he was serious and hardworking, and we thought it would develop his capability to make him chief engineer of a product that could go rapidly into production."  At first Uchiyamada assumed he could increase the G21's fuel economy by making refinements to existing technology. In a plan he submitted to Wada in 1994, he wrote that the introduction of an improved engine and transmission system could boost fuel efficiency by 50%. But that wasn't audacious enough for Wada, who didn't want to be remembered for producing yet another Japanese econobox. "It was not enough to be a simple extension of existing technology," Wada says. One possible solution intrigued him: a hybrid power system.  The concept wasn't new. Toyota had been dabbling for 20 years with the idea of placing a traditional gasoline motor alongside an electric one powered by batteries that are recharged whenever the car coasts or brakes. ([Honda](https://money.cnn.com/quote/quote.html?symb=HMC) ([Research](http://today.reuters.com/ResearchReports/AdvancedSearch.aspx?ticker=HMC)) was working on a version too.) Masatami Takimoto, now an executive vice president, says he was developing a hybrid minivan at the time but that the project had run into trouble. "There was a split between the engineers and sales executives," he says. "Engineers had the firm belief that the hybrid was the answer to all those questions -- oil depletion, emissions, and the long-term future of the automobile society -- but the business people weren't in agreement." They thought the premium price for the hybrid would make it impossible to sell.  Wada sided with the engineers and ordered the team to develop a concept car with a hybrid powertrain for the 1995 Tokyo Motor Show, just 12 months away. To reinforce his directive, he demanded that they raise the fuel-economy target even higher to compensate for higher hybrid costs. "Don't settle for anything less than a 100% improvement," he says he told Uchiyamada. "Otherwise competitors would catch up quickly." As Uchiyamada, now an executive vice president and a member of Toyota's board, concedes, "At that moment I felt he demanded too much."  To find the right hybrid system for the G21, by now called the Prius, Uchiyamada's team went through 80 alternatives before narrowing the list to four, based largely on fuel efficiency. "We had to go through numerous problems -- heat, reliability, noise, and cost," recalls Takimoto, who shifted over to the project. "We had experience in mechanical elements, but we didn't have much experience with electronic components like motors and batteries, especially high-powered ones." Then the team factored technical feasibility and cost to come up with its final choice. In June 1995, Toyota got serious about putting the Prius into production and set a target to begin manufacturing by the end of 1998.  Two months later Hiroshi Okuda became president of the company, which only increased the heat on Uchiyamada. Okuda liked to move fast, and he told Wada he wanted the Prius to go into production a year sooner, by December 1997. That meant Uchiyamada's team had to develop the car, hybrid powertrain and all, in only 24 months -- about two-thirds the time an automaker might take with a conventional vehicle. Okuda believed the technology was critical to the future of Toyota, but his directive wasn't very popular. "I have to admit that we were against the decision," Uchiyamada says. "Our team believed it was too demanding. Even Mr. Wada was initially against it."  Today Wada explains Okuda's order philosophically. "This is always how it is," he says. "The top management is not going to give detailed instructions on technology. As long as engineers come up with solutions by the deadline, that is fine." As Watanabe, who also had a lot riding on the decision, puts it, "Everything was challenging about the development of the Prius."  **THE ENGINE COUGHS**  Watching developments from across the Pacific were the product planners at the company's U.S. division, Toyota Motor Sales, in Torrance, Calif. The TMS planners had first heard about hybrids at a meeting in Japan in 1995. "It was all new and unconventional," recalls marketing executive Mark Amstock. "There was skepticism within the company about whether the hybrids were really cars." Early consumer research in the U.S. supported the skeptics. "It wasn't clear that better fuel economy alone could drive premium pricing," says Andrew Coetzee, now vice president of product planning for TMS. But another factor was at play at TMS: the ever more stringent emission targets set by the California Air Resources Board. Gradually support began to build around hybrid's ecological potential.  Thirty miles to the south, at Toyota's design studio in Newport Beach, stylists were competing with colleagues in Japan to develop body concepts for the Prius. Like everything else, it was a rush job. "Ordinarily we get two to three months to make sketches and prepare models," recalls designer Erwin Lui. "For Prius we got two to three weeks." Lui's design for a four-door sedan was one of three that Toyota executives in Japan liked, and he went there in the summer of 1996 to develop an engineering production model. But some of his colleagues were unenthusiastic. "The exterior design was polarizing," says Amstock. "With the Corolla already in our lineup, we wondered if we would be able to sell another fuel-efficient small car."  Meanwhile the engineers in Japan kept running into problems. According to a 1999 account written by Hideshi Itazaki and published in Japan, the batteries continued to be a nightmare. The Prius needed a large battery pack to power the car at low speeds and to store energy, but it would shut down when it became too hot or too cold. During road tests with Toyota executives, a team member had to sit in the passenger seat with a laptop and monitor the temperature of the battery so that it wouldn't burst into flames.  Okuda kept up the pressure. He told Wada in December 1996 that he wanted to announce by the following March that Toyota had developed a hybrid technology. But despite 1,000 Toyota engineers racing to get the Prius ready, Uchiyamada's team still didn't have a workable prototype. During cold-weather testing in February on Hokkaido island, the cars ground to a halt at temperatures below 14 degrees Fahrenheit. A media test-drive was conducted in May, but each participant was limited to two laps around the track because battery performance was so poor.  But one by one, the problems were corrected. A radiator was added to an electronic component to prevent overheating; two months were spent redesigning a semiconductor to keep it from breaking down. And after endless fussing and tweaking, the team finally reached 66 miles per gallon -- the 100% mileage improvement Wada had asked for.  **MAKING REPAIRS**  Toyota unveiled the Prius in Japan in October 1997, two months ahead of schedule, and it went on sale that December. The total cost of development was an estimated $1 billion -- after all the anguish, about average for a new car. But the Prius's initial reception took some executives, including Watanabe, by surprise. "I did not envisage such a major success at that time," he says. "Some thought it would grow rapidly, and others thought it would grow gradually. I was in the second camp." Production was quickly doubled to 2,000 cars a month.  Over in California, TMS executives were still worried about sales prospects in the U.S. Introducing cars with novel powertrains wasn't something they were used to. "It's difficult to build consumer technology awareness," says Chris Hostetter, now vice president of advanced-product strategy. "Consumers would have to be taught that the car didn't come with an extension cord. Dealers would have to be trained on how to sell the car and service it. "  When the first Prius arrived in California in May 1999, TMS gave it a thorough going-over. There was still concern about the design. Ernest Bastien, now vice president of vehicle operations, thought an SUV configuration would work better because it would carry batteries more easily; Hostetter was sure that an SUV would send the wrong environmental message. What the California team needed was to gauge public reaction. So they took what few cars they had -- all of them right-hand drives for the Japanese market -- to Orange County to let potential buyers try them out. The cars barely passed muster. Some drivers didn't like the feel of the brakes; others complained that the interior looked cheap, that the arm rest was too low, that the rear seats didn't fold down. TMS planners also discovered that a baby stroller wouldn't fit in the trunk. "It was a Japan car," says Bill Reinert, national manager of advanced-technology vehicles. "And it seemed out of context in the U.S."  When left-hand-drive models finally arrived, the testers fanned out across the country for a demonstration program. The cars had been modified for the U.S. market, with more horsepower and additional emissions equipment, and the battery pack was now lighter. But the team had a hard time figuring out who the car would appeal to. It quickly learned that extreme environmentalists weren't interested in hybrids: They were turned off by the technology and tight with a buck. And some dealers were still skeptical. Salt Lake City dealer Larry Miller, who owns nine Toyota and Lexus outlets, liked the way the Prius drove but wasn't sure about the design. "It was passable," he says. "It looked like it wouldn't embarrass us." Focus groups further tempered the early hopes. "When we told the dealers how difficult it was to predict who the buyer would be," Bastien says, "they lost their enthusiasm to have a lot full of them."  Meanwhile Honda, which had been racing to get a hybrid, the Insight, to the U.S. market first, launched its car in December 1999, seven months ahead of the Prius. But the Insight was more an experiment than a serious car. It had extreme aerodynamic styling, no back seat, and a smaller engine that used less sophisticated technology. Coming in second provided a benefit for Toyota: An Insight buyer in the U.S. posted his owner's manual on his website, and TMS used the information to modify its warranties.  The two biggest decisions TMS had to make were how many cars to order and how much to charge, the latter causing friction between California and Japan. Under the Toyota system, the U.S. sales group buys cars from the parent company at a negotiated price, then resells them to dealers. Japan wanted the Prius to sell for more than $20,000, putting it in Camry territory. But the Americans saw a car about the size of the smaller Corolla and produced research showing that buyers would balk at paying that much. A compromise was reached when TMS cut the dealer margin on the car from 14% to 10% so that it could pay Japan more and still make a decent profit. Since the Prius was expected to account for less than 1% of their total sales, dealers didn't complain. The car went on sale with a base price of $19,995. Japan lost money on the first batch -- not unusual for a small car.  Worried about the hybrid's economics, the stateside Prius team armed itself with contingency plans to boost sales if they started to sag: cut-rate leases, rental coupons, free maintenance, roadside assistance. But with profit margins scant and volumes low, there was no money for advertising. When Hostetter wanted to buy newspaper ads on Earth Day, TMS chairman Yoshi Inaba turned him down. Instead, he relied on grass-roots marketing, public relations events, and the Internet.  Since no one really knew who might buy these things, Toyota created a special Internet ordering system to ensure Priuses were allocated wherever demand popped up. Some 37,000 interested consumers signed up, and 12,000 eventually became buyers. Preselling the cars on the Internet also enabled Toyota to identify customer hot spots. (It came as no surprise that the San Francisco area accounted for 30% of Prius sales, compared with 6% for all other Toyota models.) But some Toyota dealers liked the old system better; they felt they were being cut out of the process. "Online was hard to get used to," says Miller, then head of the Toyota Dealer Council. "I said, 'Boy, if Toyota has misestimated, it would fall to us to market this turkey.' "  **SLEEPER HIT**  The Prius made its U.S. debut in July 2000. It wasn't a delight to drive, requiring 13 seconds to get to 60 miles per hour (the Corolla needed just ten). A Car and Driver writer reported, "The Prius alternatively lurches and bucks down the road, its engine noise swelling and subsiding for no apparent reason."  But the Prius caught on anyway and, as in Japan, sales were much higher than the company dared hope. Buyers didn't care about the jerky ride or premium price -- they focused on the improved fuel economy, lower emissions (as much as 80% lower), and advanced technology. Resale value protected them on the downside: The Prius retained 57% of its value after three years. Pride of ownership was so high that only 2% of buyers opted to lease.  Then celebrities discovered the Prius, and it really took off. Leonardo DiCaprio bought one from a Hollywood dealer in 2001; Cameron Diaz soon followed. A California public relations agency asked Toyota to provide five Priuses for the 2003 Academy Awards. Toyota says no money changed hands, but the value of seeing Harrison Ford and Calista Flockhart step out of a chauffeur- driven Prius was, as they say, priceless.  The boost from the Oscars and steadily rising gasoline prices stoked interest in the second generation Prius, which was in development even before the first version went on sale in the U.S. Launched in the fall of 2003, the new model became a fashion statement. It had a unique hatchback body style that made it stand out in traffic. It was faster and more powerful than its predecessor, used less gas, and produced fewer emissions. (And, thanks to a successful effort by American planners, it did not have a complicated touchpad control that required scrolling through several menus just to operate the defroster. "We had some pretty bare-knuckled fights [with Japan] because it was already packaged in," says Reinert.) People waited months to get their Priuses, as production struggled to keep pace with demand. U.S. sales doubled to 53,991 in 2004 and nearly doubled again to 107,897 the following year -- about 60% of global Prius sales. "It's the hottest car we've ever had," says Jim Press, president of TMS.  **GOING MAINSTREAM**  With success has come the inevitable backlash. Critics complain that hybrids are inherently uneconomical because the $3,000 or more the technology adds to the cost of the vehicle can't be recouped with greater gas mileage; that they don't improve fuel efficiency that much; and that some American models were being built more for performance than to benefit the environment. Carlos Ghosn, CEO of Japanese rival [Nissan](https://money.cnn.com/quote/quote.html?symb=NSANY), likes to poke fun at Toyota's supposed social responsibility.  "Some of our competitors say they are doing things for the benefit of humanity," he says. "Well, we are in a business, and we have a mission of creating value."  The knocks against hybrids are all true. But what the critics didn't put a price on was the value of being seen as eco-sensitive without giving up performance. "Does it save enough money to pay for itself?" asks Press. "That's not the idea. What's the true cost of a gallon of gas, if you factor in foreign aid, Middle Eastern wars, and so on? The truth is on our side."  The most prominent convert to the hybrid cause has been [General Motors](https://money.cnn.com/quote/quote.html?symb=GM) ([Research](http://today.reuters.com/ResearchReports/AdvancedSearch.aspx?ticker=GM)) vice chairman Bob Lutz. As recently as 2004, Lutz dismissed hybrids as "an interesting curiosity," adding that they didn't make sense with gas at $1.50 a gallon. (Besides, GM had its own powertrain of tomorrow: fuel cells.) A year later, with gas heading to $2.50 a gallon, Lutz was backpedaling, admitting that GM had missed the boat: "The manifest success of the Prius caused a rethink on everybody's part." Now GM is bringing out hybrid pickup trucks, SUVs, and buses. Other makers are also rushing to develop models. Lordly[Mercedes-Benz](https://money.cnn.com/quote/quote.html?symb=DCX) (Research) showed a diesel-electric S-class at the Frankfurt auto show last fall. [Ford](https://money.cnn.com/quote/quote.html?symb=F) ([Research](http://today.reuters.com/ResearchReports/AdvancedSearch.aspx?ticker=F)), which licenses Toyota technology, has promised the capacity to build 250,000 hybrids by the end of the decade. Even Ghosn is bringing hybrids to market under the Nissan brand.  Toyota is relentlessly adapting hybrid technology to more models, with the goal of offering it in every vehicle it makes. Last October the company invited a dozen journalists to its test track outside Tokyo, in the shadow of Mount Fuji, to drive two future hybrid vehicles. On a cold, rainy day, both cars performed flawlessly. The hybrid Camry proved roomy yet thrifty, capable of achieving a combined city and highway fuel economy of 40 miles per gallon. The silvery Lexus GS450h was quick -- zero to 60 in 5.8 seconds -- and still got combined mileage in the high 20s.  If Toyota can continue to reduce costs, and it most probably will, the potential for hybrids may be nearly unlimited. With its huge headstart, better technology, enormous scale, and powerful will to make hybrids an everyday alternative to the internal combustion engine -- a combination no other auto maker can match -- it's hard to see Toyota not dominating the industry for years to come.  *REPORTER ASSOCIATES Cindy Kano, Joan Levinstein*  See FORTUNE's full list of [America's Most Admired Companies](https://money.cnn.com/magazines/fortune/mostadmired/). [Top of page](https://money.cnn.com/2006/02/17/news/companies/mostadmired_fortune_toyota/index.htm#TOP)  [SAVE](javascript:ST();) | [EMAIL](javascript:ET();) | [PRINT](javascript:PT();) | [RSS](https://money.cnn.com/services/rss/) | [REPRINT](http://www.timeinc.net/fortune/reprints/)   |  | | --- | | [**More Company News**](https://money.cnn.com/news/companies) | | [Toys 'R' Us brand may be brought back to life](https://money.cnn.com/2018/10/03/news/companies/toys-r-us-brand/index.html)  [JCPenney names Jill Soltau as its new CEO](https://money.cnn.com/2018/10/02/news/companies/jcpenney-jill-soltau-ceo-joann/index.html)  [S&P downgrades debt-riddled GE and GE Capital](https://money.cnn.com/2018/10/02/investing/general-electric-downgrade-debt/index.html) | |

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Prof Danny Samson

Management TEXT book

published by Cengage

**Toyota Australia : 6 part case study**

Part 1 Innovative management for a changing world

In 2014, Toyota had become a very successful global automaker. Its Australian business was doing very well, being the biggest selling brand in the Australian market, well ahead of all competitors, based mainly on the locally produced Camry and all its other imported vehicles, such as RAV, Corolla, Landcruiser, Hilux, Prius and others. Investments had been made in new model development, new technology such as the new hybrid synergy drive for Camry, and Toyota was seen by many industry observers as a benchmark of ‘world’s best practice’ in operational excellence, which in Toyota was referred to as the Toyota Production System (TPS).

More generally, Toyota had implemented its ‘Toyota Way’ philosophy some years earlier, based on values of respect for people (employees in particular) and customer value creation and continuously improving quality, known as pursuing perfection. These approaches have raised Toyota to a point where its vehicles were viewed by many customers as being high in their ‘value proposition’, based on reliability and durability, especially at the competitive price points that were offered to customers.

Yet in Australia, Toyota faced some significant challenges. The ongoing viability of its Australian manufacturing operations was being questioned. The local market was small, and local costs of manufacturing were high compared with many other countries. Australia was a place that had supplied Camry vehicles to Toyota’s Middle East markets for some years, with about two thirds of the production volume from the Altona, Melbourne manufacturing facility being exported there. These 60,000 or so exported vehicles could be sourced from other Toyota plants if necessary. Australia was one of the very first plants that Toyota had established outside Japan, and Toyota had a corporate sense of loyalty to its Australian operations, where it had cut its teeth in some ways of managing manufacturing operations outside Japan, in a Western culture, some decades ago. Further, Toyota had corporately been growing year on year, continuously for some 50 years, apart from during the 2009-10 global financial crisis (when all automotive companies experienced economic difficulties), and was completely unused to reducing or shutting down operations or country level plants or business units, but rather was very well versed in growing, upgrading and investing in these.

The challenges facing Toyota of high local costs and a small domestic market also faced the other two companies operating in Australia, Ford and General Motors Holden (GMH). When in 2014, first Ford and then GMH announced the closing of their Australian operations as of 2017, Toyota had no choice but to follow, because the whole supply chain and industry could not be sustained in Australia when it was ‘feeding’ only one assembly plant operation. So in February 2014, the decision was announced to close manufacturing operations at Toyota’s Altona manufacturing facility. Toyota’s global president, Akio Toyoda, visited the Melbourne plant to make the plant closure announcement, which was a solemn, sad and momentous occasion for Toyota’s long serving employees, many of whom had been part of the company for over 30 years and had expected to be there until retirement.

This introduced a new challenge to Toyota executives and managers at all levels in Australia, of how to manage the operations, motivation, quality and continuous improvement in a business unit that was going to close and ultimately make over 2500 people redundant.

Despite Toyota’s proud history, this was a new type of challenge for the company and its philosophies.

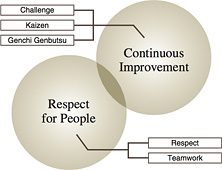
The companies guiding principles, first published in 1935, were still proudly posted on its corporate website (as translated from Japanese) as :

* “Always be faithful to your duties, thereby contributing to the Company and to the overall good.
* - Always be studious and creative, striving to stay ahead of the times.
* - Always be practical and avoid frivolousness.
* - Always strive to build a homelike atmosphere at work that is warm and friendly.
* - Always have respect for spiritual matters, and remember to be grateful at all times.”

(source: http://www.toyota-global.com/company/history\_of\_toyota/75years/data/conditions/precepts/index.html)

Further, the more recently articulated Toyota way, from 2001, was expressed as :

“The Toyota Way is supported by two main pillars: 'Continuous Improvement' and 'Respect for People'. We are never satisfied with where we are and always work to improve our business by putting forward new ideas and working to the best of our abilities. We respect all Toyota stakeholders, and believe the success of our business is created by individual effort and good teamwork.” (See the diagram)



(source: <http://www.toyota-global.com/company/history_of_toyota/75years/data/conditions/philosophy/toyotaway2001.html>)

The big new challenges for Toyota in Australia would be that the company had been truly excellent at implementing these high ideals during periods of growth, but new circumstances were upon them, and these would mean applying the Toyota Way in this new and challenging context.

Questions

1. Toyota gave itself, its customers, dealers, suppliers and employees nearly four years to implement the manufacturing closure in Australia. What were the main specific challenges the company would face in that period?
2. Once the company announced the Australian manufacturing closure, it set a local goal, of “Last car equals best global car”. What would this imply, could it be accomplished, and how?
3. If you were a shop floor ‘team member’ (factory worker) at Toyota in Melbourne, and like most of them, you had worked there for more than two decades, what emotional response would you have had to the closure announcement, and what support would you expect from the company and its executives?
4. For the many suppliers to the automotive industry in Australia, who make so many different parts, from seats to plastic components (over 900 locally produced parts and sub systems come from local suppliers), losing their three end use customers (Ford, GMH and Toyota) must have been a major disruptive shock. Even with some three to four years of notice of the closures, what would you have done if you were running a family owned business that supplied parts to the local automotive industry, once the closures were announced in 2014?
5. Toyota in Australia has always cared very much for its reputation in the market place and in the minds of its customers. One of its sayings was “Employee first equals customer first” . Interpret the likely meaning of this statement, and consider how it will play out given the new circumstances of the Toyota Australia planned 2017 manufacturing shutdown.

Part 2 Culture, ethics and sustainable development at Toyota Australia

In February 2014, the global president and the executives of Toyota in Australia, in close consultation with the Japanese parent company, made the announcement that Toyota would close its vehicle manufacturing facilities in Australia. Toyota’s global president, Akio Toyoda, came to Melbourne to announce the decision to employees. Toyota’s first overseas plant (outside Japan) was in Australia, and apart from a joint venture plant in California (NUMMI, joint with General Motors, that closed when General Motors got into trouble during the 2008-9 global financial crisis) and a small assembly facility in New Zealand, Toyota had not ever closed a fully integrated facility and withdrawn from manufacturing in one of its important markets before. It was a big deal, as it meant that the whole automotive manufacturing sector in Australia was finished after more than sixty years of successful production.

The industrial context surrounding the closure

The other two remaining vehicle assemblers in Australia, Ford and General Motors Holden, had already announced their closures, and Toyota had recognised that it was impossible to continue as the last and sole vehicle assembler, simply because the Australian suppliers of components could not remain in business with the reduced volumes of manufacturing work available, once the other companies had announced their permanent suspension of manufacturing work. These suppliers had already had their customer base reduced as Australian built vehicle volumes had been reducing for quite some few years, and were down to about 170,000 vehicles per year, out of 1.1 million new car sales per year in Australia. Australians already imported about 1 million vehicles per year.

More was the pity that Toyota would cease its Camry and Aurion assembly vehicle production in Australia, because two thirds of those 100,000 Australian built vehicles were exported to Middle Eastern markets, earning precious high-value adding export earnings for Australia, which was good for the Australian economy.

From a national perspective, government policy played a role in GM Holden and Ford announcements to close their manufacturing, combined with shrinking demand for their full size rear-wheel-drive Falcon and Commodore models. Many consumers had moved on to want SUVs and smaller and more fuel efficient vehicles, and the Australian marketplace was full of many imported models that attracted consumers, indeed Australian consumers were offered more models than anywhere else in the world. Another challenge was the relatively high level of the Australian currency and the high cost of production there, relative to lower cost countries. In 2014, the Australian dollar currency was riding very high based on economic strength coming from the country’s mining boom.

Toyota’s approach to the closure

Once the decision to close Australian manufacturing operations was made, many further decisions needed to be made involving the ‘how’ of organising and implementing such a major transition. The core element of the Toyota Way philosophy was ‘Respect for people’, and this poised the challenge of how Toyota should apply this principle to the 2800 people who would become unemployed some 3 ½ years after the announcement. One of the first actions in 2014 was to negotiate with employees and their unions an agreement for the payment that would be made to employees who would be finishing up when the plant was slated to close late in 2017. Toyota first offered payout terms based on the previous round of redundancies when it had made redundant some 250 workers from the company who were not well aligned to Toyota values in 2012. Employees rejected this suggestion, pointing out that the earlier payouts were not for long serving loyal employees, whereas the next set of redundancies was indeed for such long serving employees, many of whom were losing the employment that they had been counting on for life! The agreement was restructured and the payout amounts were increased significantly, so that employees who stayed to the end of the manufacturing process would achieve large payouts indeed, well beyond legal minimum entitlements. Most employees, from factory workers to professional engineers and managers considered the final agreement to be ‘very generous’ and fully aligned with the ‘Respect for People’ principle. For example, Toyota agreed to pay out ¾ of employees’ sick leave entitlements for employees. Many long serving employees were to be paid some 90 weeks’ worth of their remuneration, which represented large cash payouts indeed, often well over $200,000. Toyota was known to be a high-paying organisation in its industry, and this arrangement was no exception.

More than monetary payout

Toyota realised that most of its employees were long serving, loyal and hard-working, and deserved to be well equipped for their work life after the plant closure. The company’s executives then addressed the question of how they could best do this, recognising that some employees would be redeployed within the new Toyota organisation, some would retire, but that a good number would need to keep working and find other jobs after 2017. So in 2014, the company established two major initiatives known as Upskilling and Reskilling, aimed at preparing employees for their longer term future after the plant closed.

These initiatives were well-resourced sets of activities, aimed at giving employees, especially those who would not be employed after the plant closure, higher levels of capabilities (upskilling), or different capabilities and qualifications (reskilling), than they previously had, in order to best prepare them for entering the labour market and other organisations after Toyota.

Initially, Toyota set up education programs so that employees could learn a higher level of qualification than their present role demanded. Partnering with a local TAFE college that could formalise such certificated qualifications, employees could study team leadership, project management and a host of other certificated courses that would give them advantage and uplift when they were job-seeking. Toyota paid all the costs of such training. This initial work came after studying how BHP had treated its workforce after it closed its steelworks in Newcastle some years prior. Many hundreds of Toyota employees took good advantage of these capability upgrade opportunities, over a three-year period. Toyota allocated significant resources for them.

In 2014, Toyota set up its ‘DRIVE’ initiative and centres, (Drive stands for dedicated, ready, individual, vocational and energized), aimed at giving career advice, guidance and the necessary education to all its employees who wanted to further themselves or broaden their qualifications or change career direction.

These initiatives took a significant amount of resource and planning, as over 2500 people were eligible to get individualized support.

Toyota employees were in many case shocked by the announcement that the company would close its manufacturing operations. Many employees had over 30 years of service in the company, and had not ever conceived of working anywhere else. The company was renowned worldwide for its ‘operational excellence’ in its Toyota Production System (TPS), that so many other companies had tried to adapt from and emulate, which led Toyota to invest greatly in the skills and capability of its staff. Some employees had undertaken over 100 training courses during their career. They engaged deeply in problem solving teams in the pursuit of continuous improvement via problem solving. Yet these employees who were so very used to the Toyota way of doing things that was very specific, were going to be displaced. Toyota had provided a high level of training and support, including career path development for its employees at all levels, and yet the DRIVE centre required employees to formulate their own future vocation and career path, beyond what those employees were familiar with (many of them had never worked outside the company or the automotive industry).

Enacting the core principle of ‘Respect for People’ in the transformation out of manufacturing would require a well-constructed set of initiatives that could cater for a high variety of people’s wishes, and skill types and levels, from factory workers to highly specialised welders, engineers, managers and others.

Obligation to suppliers?

All automakers buy in a lot of components with which to assemble their vehicles. In Toyota’s case in Australia, some 900 components out of the thousands used in producing a Camry came from external Australian suppliers, and once the local assembly industry closed, these suppliers would lose their local customer base. Few of those suppliers exported. While some suppliers could possibly diversify to find other industries to participate in, Toyota had two major concerns, namely how could it manage the risks of some of these suppliers stopping supply before Toyota wanted to, especially with Ford and possibly GM Holden closing earlier than Toyota? Second, many of these suppliers had been long term business partners with Toyota, and the feeling in Toyota was that just as it wanted to do more than the bare minimum required by law and its contracts with employees, so did it feel obliged to support suppliers where possible to deal with the abrupt closure that would likely occur late into 2017. Many of these suppliers had made significant investments in equipment and advanced technologies based on the assumption of long term relationships and supply, which was not going to eventuate.

Questions

1. How could the executives at Toyota decide how to set a monetary budget for the upskilling and reskilling benefits it would provide to its employees? How much is the correct amount of resource for ‘respect for people’? What are the costs and benefits of this decision issue?
2. Toyota had provided a high degree of training and career path planning for its employees in the past, and would soon ‘set them free’ in many cases, requiring employees to take full personal responsibility for their careers. What challenges would this bring to individual employees, their families and the company?
3. How could success be measured in preparing employees for their work life after Toyota?
4. Are there any other actions that Toyota could implement apart from upskilling and reskilling for their employees, especially the long-serving highly loyal people who had never worked anywhere else?
5. How would Toyota gain a ‘return on investment’ for the large amount of money that would be spent on employees who would cease employment there?
6. Do you think that Toyota should have supported and possibly even compensated suppliers beyond minimum contractual obligations associated with the closure? Why?
7. Once the announcements were made in early 2014, how could suppliers to Toyota and the other automotive assemblers have planned for their longer term future.
8. Evaluate Toyota’s approach to its stakeholders in terms of community obligations, given the circumstances of the manufacturing closure.

Part 3

Planning and organising the transition at Toyota Australia

Toyota had many important decisions to make subsequent to the major decision to close its manufacturing operation. It was essentially going to transform from an employer of 4100 people to one of 1300 people in Australia. The new organisation would be mostly involved in sales and service support, since Toyota would still be a large importer of cars, with a major dealer network, parts to import and distribute, and many other services to conduct. Aside from the large manufacturing facility at Altona in Melbourne, Toyota had its substantial head offices and a large sales and service organisation in Sydney. With the downsizing, might it make good business sense to rationalise these activities, for example by locating them all in Melbourne? What should be done with the large site located in Altona one it is no longer needed for building cars?

How would the production schedule be ramped down between 2014 and 2017, gradually over a multi-year period or more or as a step function on the day of closure or some other way? How would the company manage its market and dealer relationships both in Australia and in the Middle East where 2/3 of its Camrys were sold?

How would Toyota ensure that quality of its vehicles remained as high as possible once suppliers and employees faced into the fact that the end of local manufacturing was nigh? What about employee loyalty, commitment and motivation?

The decision to produce a certain volume of vehicles at Toyota was not easy to flex up and down on a daily basis, because assembly line processes are carefully balanced and not very flexible. Toyota was producing one vehicle every two minutes, which came to over 95,000 vehicles per year, using a two shift pattern that worked five days per week. Should this continue through to the closure, and what impact would market forces and consumer demand have on these plans?

On the workforce side, many employees in Melbourne wanted to remain employed by Toyota and transition from being in or supporting the manufacturing activities to then work in sales or service. Yet there were many more highly skilled and motivated loyal employees than there would be jobs after 2017. If Toyota was to consolidate its sales/ service organisation from Sydney to its larger base in Melbourne, how many employees would transfer from Sydney, and how could Toyota create a rational and orderly process of transition of its Sydney and Melbourne workforces to ensure it had the right group of people post closure, in 2018 and beyond? This was no small matter, because the workforce would change from 4100 to 1300 post closure, and Toyota’s ‘Respect for People’ principle guided it to prepare all its staff for either continuing employment in new roles or for life after Toyota in a ‘top-shelf’ manner.

These and many other decisions had many interconnections and lots of unknowns and ‘moving parts’, along with some objectives which brought together the human considerations, with financial and marketing goals. It extended beyond the company and its people and products to well over 50 local supply organisations and their owners and employees.

Moving towards the manufacturing closure

Toyota had a plan for investing in capital equipment such as robots and welding equipment, new presses and vehicle painting machinery in place which were disrupted by the closure announcement. Future plans needed to be reformulated in light of the closure announcement about such equipment, and indeed, what would happen to the whole set of equipment and the large Altona site once vehicle production was finished. Major shifts in the organisation of sales and service personnel would also occur as it was recognised that some and possibly many staff would not move from Sydney to Melbourne once the rationalisation occurred, and some executives, managers, engineers and team members might choose to retire rather than look for other jobs, but the key question was how many and who? Toyota needed to conduct workforce planning, market planning, equipment planning, asset and facility planning, indeed it needed to rethink almost every aspect of its business model. And it was insistent that it would do all these things while not dropping the ball on safety, quality, productivity, customer service (in Australia and the Middle East), and business success. Indeed it was determined to increase and not decrease its adherence to its principles of Respect for People and Continuous Improvement during the transition period, as well as its performance on the key parameters that ranged from cost and quality to community contribution and environmental performance.

Goal setting for the transition out of manufacturing

Toyota set itself some goals associated with the manufacturing closure process. Aside from treating all its key stakeholders with respect and staying true to the Toyota Way principles, the company decided that a key goal was to continue production in Australia at full volume until the last day. Other companies had ramped down their production volume. Their next core goal related to quality: expressed as “*Last car equals best global car*”, which is a high order challenge that would stretch the company. It would require the company’s many employees to continue to stick to the standardised work processes and practices, and to remain highly motivated and continue to engage in continuous improvement and systematised problem solving until the end. The company also set stretch targets in terms of safety, environmental performance, productivity, waste elimination, cost reduction and employee engagement, all of which were carefully measured and were the subject of professionally managed improvement initiatives. Toyota went to great lengths to communicate the targets and performance against target on all these dimensions of performance, via having visual displays known as ‘Obeya’ boards in many places throughout the company, and regular meetings of executives, managers and team leaders and members on a frequent basis. The aim of these goal setting processes and the large effort spent on communications and discussion was to ensure that everyone in the company was on board with such goals, and to maximise the opportunity for contributions from throughout the company to these. An example of a Toyota Australia practice was a ‘Hoshin Café’, comprising a full day of discussions and communications of progress, challenges and improvement suggestions on the seven main dimensions of manufacturing performance.

Questions

1. What arrangements would you have put in place to ensure the successful implementation of the manufacturing transition, once the closure announcement was made in 2014?
2. How would you set goals for the company during this transition phase?
3. List the core decisions that Toyota executives had to make concerning the transition. How much complexity of interdependence was there across these various decisions?
4. Toyota spends a lot of time money and effort on managing to set goals. Do you think this is fruitful expenditure? Why/ why not?
5. Some companies do not display performance statistics and targets to nearly the extent that Toyota does. Comment on why you think this is so, in the sense that if it is worthwhile to do so, why are such practices not very widespread in organisations? Could it be that in some cultures, such measurement and reporting is not valuable?

Part 4 Leading and Managing people in Toyota Australia

Executives in many organisations have been known to espouse statements such as “People are our greatest resource” in speeches and even in annual reports. Yet how many of them actually turn such a fine sentiment into consistent actions?

When Akio Toyoda, global president of the company, came to Australia in February 2014 to announce the closure of its manufacturing activities, one of the first commitments made by the company was to implement the major change in a respectful way, true to the principle of “Respect for People” that had guided this company in its times of growth and prosperity. It was important in principle to continue to treat people well, and it was also important because Toyota executives knew that high levels of quality, productivity, continuous improvement and safety come from the actions of people, not machines or computer systems.

Background of human resources management at Toyota Australia

The relationship between Toyota and its employees in Australia had not always been one of full cooperation and collaboration. Prior to the shifting of all manufacturing activities to Altona in Melbourne, Toyota had conducted operations at Dandenong and Port Melbourne, and in those earlier days, the strongly unionised workforce did not always see eye to eye with Toyota management. The automotive industry had traditionally been one of a strongly unionised workforce, and during its history, there had been numerous strikes and other problems right across the sector, including at Toyota. Even as recently as in 2012, Toyota took strong action when it needed to downsize its workforce at Altona, and identified 350 people whose values were not fully aligned to Toyota’s values when it needed to downsize and implement a redundancy program. Unlike one of the other automotive companies that called for voluntary redundancies around the same time, Toyota’s managers chose the people who would be forced to leave. Challenging as this process was industrially, most Toyota employees appreciated that it needed to be done as part of continuous improvement. Toyota received some negative press from that initiative, and spent much time and effort in Australia’s industrial courts, yet inside Toyota, numerous employees applauded the removal of some of the least aligned and unproductive employees from the workplace.

Current situation

Over the decade leading up to the 2014 closure announcement, a series of Toyota executives had sought to build a positive, win-win employee-employer relationship and culture at Altona and beyond. It had largely been successful. The company’s approach was to drive and to measure employee effectiveness as an aggregate of employee engagement (commitment and discretionary effort) and employee enablement (optimised roles and supportive environment). Engagement was carefully led and managed, with particular focus on having a clear and promising direction, confidence in leaders, corporate social responsibility ethics, development opportunities, diversity, pay and benefits, quality and customer focus, respect and recognition. Significant challenges existed in terms of elements such as promising direction, and development, when it became known that many people would become unemployed once manufacturing ceased, even though it was after a nearly four-year transition process from the 2014 closure announcement.

The components of employee enablement were authority and empowerment, collaboration, performance management, resources, safety, training, work structure, and process. Toyota managers worked hard to achieve high performance on all these aspects, which were regularly assessed through anonymous employee satisfaction ratings. Toyota measured employee opinion of these dimensions twice each year, for every division and department of the company, in both factory operations and support/ office areas. All divisional managers received comprehensive feedback about their area of managerial responsibility and were accountable for those results and for driving towards stretch targets on those.

The employee effectiveness results placed Toyota near the top of most Australian company’s results on these parameters, as benchmarked by the consulting firm that independently conducted these studies. By far the majority of employees felt strongly engaged and quite strongly enabled. They were well ahead of Australian benchmarks on pay and conditions and training and development opportunities. However, there were still challenges and much room for improvement on some aspects of employee effectiveness. Many employees expressed less than ideal levels of trust and confidence in senior management, which was perhaps understandable given the manufacturing closure decision, but needed to be restored at high levels. Engagement scores were generally higher than enablement, once again providing a challenge and opportunity to improve. Many Toyota employees were engaged in routine and repetitive standardised work, assembling cars, with the same task needing to be done every two minutes. Toyota’s challenge of keeping such workers highly engaged and enabled should not be underestimated, and this is where the training and involvement in problem solving and continuous improvement plays a key role.

Many Toyota employees were quite fully signed on psychologically to the Toyota Way core elements of respect for people and continuous improvement. In a series of interviews conducted by one of this book’s authors, many expressed an almost uniquely Toyota-like sentiment: ”My job equals my work plus kaizen”. Kaizen is the Japanese term for continuous improvement and problem solving. Both managers and team members who build cars expressed this view of essentially having two key roles, of doing the work (whatever it might be), plus engaging strongly in problem solving that is focussed on improving the work processes and ultimately the vehicle’s value proposition in the market.

The future for Toyota people

Toyota’s retraining program for employees was started in 2014 and would continue as needed right through to mid 2018, some six months after the manufacturing plant closed. All employees were given the opportunity to decide their future career path, and once settled upon, Toyota paid the full costs of education and training for that personal transition. By mid 2016, some 60% of employees had engaged with this DRIVE (reskilling) initiative, and many quite extraordinary personal stories emerged. For example, over 20 Toyota employees nominated to become nurses, and Toyota arranged for them to attend the required training, which is a substantial three year nursing degree: this is a large change for career automotive industry workers! Others were being trained to become pilots, lawyers, truck drivers, logisticians, aged care workers, hospital theatre technicians, construction industry workers and all sorts of tradesmen. Many opted to learn how to start and operate a small business with the goal of becoming a franchisee or starting their own small business.

The ‘upskilling’ initiative at Toyota was also active, providing many hundreds of employees with higher skill levels than they previously had in useful disciplines such as supervising and leading people, managing performance, budgeting, team supervision and project management. Upskilling involved formal certificated qualifications that employees could take into the labour market.

Questions

1. Do you think that Toyota’s efforts in creating “Respect for People” is common practice in organisations around the economy, in other companies, small businesses, and the public sector? What are the costs and benefits of such an approach?
2. Explain the term “My job equals my work plus kaizen (continuous improvement)”, and interpret its benefits in the workplace.
3. What are the key managerial challenges of having such a long time (nearly 4 years) between the announcement of the plant closure and the last day, when it is more usual around the world for this period to be weeks or months, rather than years?
4. How would you justify, in business terms, the large investment of money and time in employees who are going to be leaving the company?
5. With 2800 people leaving the company and 1300 people remaining employed in Toyota, would there be an issue of managing the ‘leavers’ and the ‘stayers’ cultures during the last two years, and how should executives and managers best manage it?
6. As the last day of automobile production approaches, will motivation for safety, quality and productivity, as well as continuous improvement be sustainable? How?
7. Toyota has always measured and visually displayed a great deal of data about many key aspects of performance. How does this approach benefit the company, and why do many other company not emphasize this?

Part 5 Toyota’s behaviour and teamwork

The success of Toyota around the world, substantially due to its Toyota Production System (TPS) and more recent ‘Toyota Way’ approach to work was based on many common sense principles, including ‘standardised work’ and continuous improvement. Many organisations, especially in manufacturing industries, had been trying to implement these powerful concepts for years, but only a few had succeeded in making them stick in a sustainable way. A core reason for Toyota’s ability to implement with such relative success was its deep Respect for People principle. Many organisations have found that it is not enough to merely specify the standard operating procedures, with the real challenge being to have people work to those standards consistently and sustainably. This capability is critical, especially in process work contexts of repetitive manufacturing or services, to achieving high levels of productivity and quality, with low levels of defects and waste. Adherence to standardised work procedures had taken Toyota in Australia quite a few years to achieve, yet it was now firmly in place. This was seen by employees at all levels to bring significant benefits to everyone, including themselves, in terms of safety and the certainty and comfort of knowing how and what to do at work.

Further to having the strong sense of stability of work processes, this company achieved the enviable position of having more than half of its workforce, at all levels, strongly engaged in work process improvement. Toyota employees uses the term ‘problem solving’ with great regularity, as its key mechanism for moving towards ever higher levels of performance, and ‘pursuing perfection’.

This continuous improvement work was regularly done in problem solving teams. Whatever the problem (or opportunity), it was usual practice to set up a group of people, and go through a well-defined process of identifying the issue/ problem, validating it with observation and supportive data, then examining alternatives for creating improvements and solutions, followed by implementation of these solutions. These groups of people would forge themselves into a team with a shared goal of solving the program and making progress that was measurable.

This problem solving work is usually above and beyond the normal course of work for team members at Toyota, who spend their normal work time assembling cars or in support of such assembly. The problem solving work is usually performed during non-standard work hours, whether that is before or after their work shift, or on weekends. Employees derive a number of benefits from such work, including the extra pay that comes from the overtime hours put in, and the job satisfaction that is palpable from their achievement of solving problems. There are literally hundreds of such problem solving teams and processes ongoing at any one time in this company, using a standardised approach that is broadly understood across the company. Participation levels in such teams is certainly not universal in Toyota, but it is very widespread. Benefits to the company are in all aspects of operating and business performance.

The team approach to problem solving often involves people who come from different areas of the company, who come together to bring different perspectives or knowledge and expertise to it. It might involve team members (factory workers), maintenance tradespeople, engineers and others. Issues can be related to equipment reliability, vehicle quality, component quality, or administrative issues such as work rosters, and a host of other matters. Toyota employees know that solutions to problems have to be demonstrably robust, because there is no point making a change to a process that solves a problem if it causes problems elsewhere. That also know that solutions must be stable and ‘foolproof’, meaning that the solution can be converted into a change to a new standardised work process definition, that will be implemented and adhered to by all who conduct that process, out into the future.

These high standards of accomplishment and ambition for Toyota’s problem solving teams require a good deal of process knowledge, from understanding how to interpret data, how to interact in groups and teams, how to brainstorm solutions, how to manage conflict, and how to communicate and present ideas effectively. It also requires maturity of thinking about multiple stakeholders, from various units within the company, to customers and suppliers, and the environment. It requires knowledge of quality assurance. It is important to note that this approach at Toyota is a companywide approach, used as much in departments such as sales and corporate services, as in manufacturing plants and maintenance operations.

Apart from a myriad of problem solving teams attacking major and minor opportunities to improve all over the company, the manufacturing organisation at Toyota Australia’s Altona plant created a structure of Action Learning Teams (ALTs), that meet regularly to address issues and set in place problem solving processes and investigate and review solutions. Toyota has a central ALT at Altona, and each manufacturing plant or unit (welding, painting, logistics, final assembly, resin plant etc) has its own local ALT group, that meets as a forum for bringing up issues of any kind and finding ways to resolve these. These systems of ALTs provide a forum for setting up and solving problems, and, importantly, for communication of messages in all directions from managers to workers, union representatives, manufacturing to corporate services and human resources managers, and other internal stakeholder groups. All such ALTs are aimed at producing better products at lower cost and to reduce waste. These are formally constituted teams (central ALT has some 15 members), and Toyota finds them to be very well worth the time and effort required in and beyond meetings, because of the improvement that is driven by the energy and initiative from these teams. Monthly meetings have formal agendas, are very business-like and efficiently conducted and lead to many problem solving actions that result in small and large improvements. Apart from action learning problem solving, these ALTs allow managers to keep abreast of issues bubbling up from the shop floor, and worker representatives to keep their finger on the pulse of managerial intent and strategies. They provide a very useful ‘soft infrastructure’ (without the use of formal authority) for Toyota’s progress and improvement, that complements the many other aspects of performance measurement and management that this company has in place.

Employees at Toyota are given a lot of information, involving many communications, and this includes regular and quite frequent meetings, that are run with great discipline, to avoid wasting time. This aims to ensure that people are ‘in the know’ generally and that they also have all the information they need to do their jobs effectively. Despite this formality of process and the structured nature of meetings which include a sense of urgency, Toyota employees often speak about the culture that feels like “a family”. Unlike many other large organisations, there is a friendly atmosphere in this business. The ‘Respect for People’ principle is not just how the employer treats its employees, but also manifests in how employees treat each other. Many Toyota employees have brought family members or friends into the workforce as opportunities have arisen. Even though the manufacturing operations are set to close, when we interviewed over 120 staff in preparing these case studies, Toyota employees mostly expressed being very grateful of the opportunity they have had, whether they are ‘stayers’ or ‘leavers’, to have worked in this business. Employees at Toyota tend to stay ‘forever’ once they get past the first year and ‘acclimatise’ to the unique culture, yet some do leave in the first year, because the culture and work processes seem quite demanding.

Indeed, with this strong and positive culture, a possible ‘gap’ for Toyota employees who are leaving in late 2017, is that they will be unprepared for the very different cultures they will encounter across the economy.

1. Explain the facilitating role of Toyota’s ALTs, and the gap that they effectively fill.
2. If you were to work at Toyota, what would you be expected to do apart from your primary job?
3. Explain the term ‘standardised work’ and its benefits, and discuss whether it impedes or fits with continuous improvement and innovation.
4. What types of knowledge and capabilities does Toyota’s approach impart to its employees?
5. Discuss why the approach that is in a mature state in Toyota is much less mature in most other organisations.
6. The strong systems approach in Toyota of standardised work and continuous improvement can at first seem to be independent of the human resource: discuss this statement.
7. Do you think that the high engagement culture of Toyota is universally well suited to everybody in the economy?

Part 6 Toyota Australia: quality at the heart of its operations

Throughout Toyota’s worldwide operations, it was renowned for its ‘quality’. During the 1970s and beyond, Toyota was at the forefront of what Western companies called ‘total quality management’. This was seen as a philosophy and set of methods for pursuing quality at levels in an organisation, from the products and services themselves that were ideally to be ‘fit for purpose’ and ‘conformed to customers’ requirements’, through to statistical process control, which are techniques for measuring and achieving those ideals in production and, indeed in all other processes. Whereas many Western organisations pursued these powerful and attractive management ideals as programs to be installed over months or a year or two, Toyota had these ideas as core values built in to its permanent philosophy. Toyota has the explicit aim of ‘pursuing perfection’, and has in fact been improving all aspects of its quality of management and all processes for more than fifty years.

It should be noted that this meaning of quality is not to be confused with the luxury notion of market positioning. Toyota became excellent at managing quality well before it ever produced its luxury vehicles (Lexus sub-brand), in its mass market vehicles and services. For this reason, Toyota’s vehicles, which are the result of the quality of all its processes, have become renowned for reliability, durability and ‘value for money’. Toyota’s biggest selling models globally are Corolla (which has been the world’s biggest selling car for some years now), followed by Camry and RAV.

While many people consider Toyota to be the ‘gold standard’ of implementation of quality management and operational efficiency, no company is perfect, indeed not even close. Toyota had had numerous imperfections in its vehicle designs and production processes and in its supply chain. Its reputation took a drop when it had high profile problems in the USA in 2009, causing it to issue a recall on some 3.8 million vehicles, related to floor mats, accelerator pedals and brake override systems. Air bag inflators and emission control equipment faults led to over 3 million vehicles being recalled in 2016. Even though all automobile producers have quite a few product recall actions and other quality problems, the publicity from the USA accelerator pedal/ floor mat problems was significant for Toyota, with many people in the company working to ensure that design and manufacturing processes were improved. The company had grown and succeeded very rapidly and took a deep and reflective breath in order to overcome and prevent further such problems. Automotive products are complex and highly technologically advanced, and defect free, durable and reliable ‘perfect’ outcomes in such vehicles are hard to achieve, especially when one considers the hundreds of companies involved in the supply chains of the thousands of components in a modern vehicle.

Problem solving and continuous improvement throughout the supply chain.

In Australia, much as elsewhere in the Toyota world, employees in all functions and at all levels of seniority from shop floor ‘Team Members’ to executives are mostly involved in continuous improvement processes aimed at problem solving. At any one time in the Australian business, especially within the Altona manufacturing plant, hundreds of these problem solving processes are ongoing. Organising these and implementing their solved problems takes a lot of effort. Participation in such groups involves over 70% of Toyota people. Some are small local teams. Some are solving much larger problems, all focussed on creating more value through improving processes around the products and services, or internal processes, or reducing unnecessary costs. This high intensity of continuous improvement has required a great deal of training of all Toyota employees, and is fully embedded in how this company operates. Toyota employees all have a common language and common knowledge of tools and approaches to identifying problems, brainstorming solutions and then evaluating these, then approving these for deployment and implementing permanent solutions. These efforts result in a never ending quest and achievement for cost improvement, vehicle quality and services value improvement. Many aspects of quality are measured on a continuing basis, and these results are displayed throughout the company for all to see. When trend lines are going in the wrong direction, actions are taken to quickly and efficiently identify, investigate and provide a fix to the ‘root cause’ problem. After years of such diligent improvement work, Toyota’s primary production processes are generally stable and efficient. Yet the company and its staff all know that ‘pursuing perfection’ is a never-ending task. Most of the vehicles produced, despite all the thousands of parts involved and the technical complexity of them, pass straight through the final inspection processes and are ready for sale, without any rework or adjustment needed. The Toyota philosophy, now emulated by many other organisations, is to build quality in at the source, meaning that every employee takes responsibility for assuring that their work effort is ‘to specification’. Very similar processes are applied in administrative, support and engineering and design processes to those that work so effectively in the more tangible production/ manufacturing side of the business.

Supplier relationship management

As much as Toyota has been continuously improving quality improvement and problem solving within most units of its business for years now, and has honed these work processes to be more refined than almost any other large organisation in the world, a limitation on its ability to produce an excellent quality vehicle is ultimately its dependence on the quality of the thousands of component parts per vehicle that it buys from other companies back up the supply chain. Its first tier (direct) suppliers manufacture subsystems such as gearboxes, seating systems, electronic control units and wheels, and these suppliers have their own suppliers and so on, which links all the way back to the basic raw materials such as raw steel, bulk plastics and other materials. As it does globally, Toyota has a substantial supplier relations group in Australia who do a lot more than just arrange to buy the needed parts. They treat their suppliers as partners in striving to get the components made to the precisely correct quality standards, in order for Toyota to achieve the vehicle outcome to those same exacting standards. Toyota has invested in having teams of expert staff who are dedicated to supporting suppliers, attempting to encourage suppliers to bring in similar levels of continuous improvement and problem solving processes as are achieved at Toyota. These support activities are couple with demanding requirements of suppliers to continuously drive all forms of waste out of their businesses and to therefore reduce costs, for mutual benefit.

Quality control is not the only type of control that excellent companies must exercise. Toyota has strong disciplines in its financial control systems. In sales and marketing activities these relate to sales volumes, revenue measures and margins. Stretching goals are set and progress against those goals is carefully monitored, with gaps being identified, leading to ‘gap-closing’ efforts and initiatives. In production units within the Altona manufacturing plants, where Camry and Aurion are produced at the rate of 100,000 units per year, cost is carefully monitored. A saving of $2 per vehicle through a process improvement or waste reduction action leads to an annual amount of $200,000 saved! By getting as much as possible of its processes ‘right the first time’ the deadweight cost of rework is reduced. Most organisations waste fully one third of their operating budgets[[1]](#footnote-1), yet with decades of intense attention to problem solving, Toyota is significantly more effective than this.

Toyota’s quality goal during the transition to manufacturing closure, expressed as “Last car equals best global car” will be a true and tough challenge of all its principles and the depth and resilience of its systems and people.

Questions

1. How does an intensive and company-wide approach to quality management lead to improved business results?
2. Given that Toyota has led much of the world in its success in implementing these approaches to ‘build quality in’ to its processes and products, why do you think that almost all other companies have not implemented such an approach?
3. Toyota measures very many things to do with its business, in production, employee engagement, customer satisfaction, usually in great detail. Is it possible to do too much such measurement, and how would you judge how and what to measure?
4. How can a company such as Toyota assure itself that the large investment it makes in training, paying overtime to employees while they engage in problem solving activities etc, gets them a worthwhile return on investment?
5. How much can Toyota influence its suppliers to engage in continuous improvement and how would you negotiate this? How does Toyota benefit from such initiatives?
6. What is the role of employees in achieving these quality based improvements?

1. Bevington, T., Samson, D., Implementing Strategic Change, Kogan Page, UK 2012 [↑](#footnote-ref-1)