

## **Eliminating waste, and rivals by Doron Levin - Bloomberg News**

Toyota Motor makes life miserable for Detroit automakers in more ways than anyone can count. Consider the Camry family sedan, the top-selling model in the United States last year. It is Toyota's seventh sales crown since 1996.

The Camry, once a compact economy car, has become a consumer benchmark for quality and reliability. Financially, Toyota benefits from a manufacturing system that spits out Camrys so efficiently and at such low cost that U.S.-based automakers have a tough time keeping up.

The world's most-profitable automaker, with more than \$10 billion in net income last year, then invests in further improvements and innovations like hybrid technology, which helps it gain more market share in the United States, even as rivals bemoan the cost of developing their own hybrids.

"Toyota just saves and saves in a million little ways and then uses that money as a club against its competitors," said Jim Olson, a former Toyota executive and now a guest lecturer in business at Winthrop University in Rock Hill, South Carolina.

In 1990, "The Machine that Changed the World," a book based on a research project, predicted that Toyota's production system - called "lean manufacturing" by the authors - was destined to revolutionize automaking. The authors, James Womack, Daniel Jones and Daniel Roos, asserted that Toyota's philosophy of waste reduction was as historic as the invention of the moving assembly line.

The book's prophecy is being borne out by events. Every automaker in the world, and many non-automotive manufacturers, today study Toyota.

But Detroit automakers have more pressing troubles. Studying Toyota can't quickly help the industry cope with the looming threats posed by falling market share, huge net losses, labor unrest and too much plant capacity.

Executives at General Motors, Ford Motor and Delphi, the former GM parts subsidiary that on Oct. 8 filed for bankruptcy, are pushing to cut health care and other so-called legacy benefits from noncompetitive labor agreements, which they blame for poor financial performance.

Health care, for example, adds \$1,500 to the cost of making a GM vehicle. Yet even if costs related to health care, pensions and high union wage scales somehow were to shrink, the manufacturing expenses of U.S. automakers would still be uncompetitive.

By rooting out wasted costs, effort and time - as well as excess capital investment - Toyota has turned factory utilization and labor productivity into major advantages.

Toyota's North American factories last year built 1.44 million vehicles. That number is 107 percent of Toyota's theoretical capacity, as the plants worked two shifts a day without overtime.

How is output above 100 percent possible? Efficient manufacturers find ways to squeeze out extra vehicles by breaking production bottlenecks, thereby creating time each day to perform additional productive tasks.

Breakthroughs in factory efficiency at Toyota are rarely big. Gain comes from countless little tweaks, encouraged by the company's ethos of constant improvement, known as "kaizen" in

Japanese. Kaizen is not unique to Japan. American workers and managers in Toyota's U.S. plants are learning and teaching it.

In contrast to Toyota's plant utilization, GM and Ford factories used only 86 percent of their rated plant capacity last year - suggesting they could have invested more efficiently to avoid expensive excess space and machinery.

Harbour Consulting, a firm based in Michigan that analyzes factory efficiency, in June reported that the average Toyota vehicle built last year in North America needed about 19.5 hours of labor for assembly, while each GM vehicle took about 23 hours and each Ford about 24.5 hours.

General Motors built 4.92 million vehicles in North America in 2004. Since the average cost of GM labor, including benefits, is about \$73 an hour, GM probably could have saved more than \$1.2 billion simply by matching Toyota's labor productivity. GM has lost about \$3 billion so far this year.

"The big challenge if you're trying to match Toyota is that they've developed a culture over decades," said Jeff Liker, a University of Michigan engineering professor and author of "The Toyota Way," published in 2004. GM "has to change an existing culture into a new one."

Not that GM hasn't tried. GM and Toyota started a joint vehicle manufacturing venture in Fremont, California, in 1984. The plant, run according to Toyota principles, remains a laboratory for GM managers and leaders. Ford and Chrysler, too, have taught countless classes in lean manufacturing.

Delphi even hired experts from Toyota to lead cost-saving in its factories. Evidently that wasn't sufficient to avert bankruptcy.

Toyota, meanwhile, disclosed in September that it aimed to slash to one year the time it takes new models to go from drawing board to production. Analysts say that would be faster than any other automaker and save tens of millions of dollars a year.

Companies now need as long as three years to bring out a new vehicle.

Toyota did not create principles of constant improvement and efficiency to defeat rivals. Its ideas spring from a deep-seated world view in which waste is unacceptable.

Toyota's culture also emphasizes humility, Liker said. "Toyota people are always afraid that if you aren't thinking about improvement, then you're in danger of becoming complacent."

The accomplishments of the U.S. auto industry helped make it self-satisfied and slow to respond to new competitors. GM and Ford, once the crown jewels of U.S. industry, are being humbled by a rising industrial culture that is more powerful than they ever imagined.

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