

# OLIVER WYMAN

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## Lean Improvements, Worker Buyouts Bring Detroit Three Productivity Closer to Asian Rivals, says Oliver Wyman's Harbour Report™ 2008

- Gap between the most and least productive companies shrunk to 3.50 labor hours per vehicle.
- Toyota and Chrysler led the six largest multi-plant North American automakers in total manufacturing productivity (assembly, stamping, engine and transmission), each averaged 30.37 labor hours to manufacture a vehicle.
- New UAW contracts will further reduce the total labor cost gap between Detroit Three and competitors over the next three years.
- Hyundai's Alabama plant posted a very competitive 20.62 assembly hours per vehicle in its first year participating in *The Harbour Report*™.

### 2008 Best Plant Awards for Labor Productivity

Vehicle Assembly --	Chrysler Toledo South
Stamping --	Toyota Georgetown
Engine --	Global Engine Manufacturing Alliance (GEMA)
Transmission --	General Motors Toledo

DETROIT, June 5, 2008 – Driven by more consistent, leaner processes and buyouts of tens of thousands workers, the Detroit Three automakers in 2007 nearly erased the productivity deficit against their Japanese-based competitors, despite declining production and shrinking market share.

The difference among the Big Six from the most to least productive in terms of total manufacturing labor (Assembly, Stamping, Engine and Transmission) has dropped to 3.50 hours per vehicle (or about \$260 per vehicle), down from 10.51 hours (or \$790 per vehicle) in 2003.

Chrysler showed the biggest improvement, cutting its total manufacturing labor hours per vehicle by 7.7% to 30.37, the same number recorded by Toyota, according to **Oliver Wyman's *The Harbour Report*™ North America 2008**, the annual study released today. Oliver Wyman acquired the report in January 2008.

It is worth noting that Toyota fabricates and assembles a greater percentage of its vehicle parts with its own employees, while Chrysler purchases many modules and subassemblies from suppliers, thus saving labor. Toyota also has retained nearly all its employees even in plants that experienced lower production. In contrast, GM, Ford and Chrysler have used buyouts and layoffs to reduce labor costs.

General Motors brought its total manufacturing productivity performance to 32.29 hours per vehicle, its 15<sup>th</sup> consecutive year of improvement. Ford reduced its labor hours per vehicle by 3.7% to 33.88, despite producing 6% fewer vehicles than it did in 2006.

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“Improving productivity in the face of lower production is a huge accomplishment, especially with the pressures created by rising gas prices,” said Ron Harbour, partner in **Oliver Wyman’s** North American automotive practice. “Toyota remains the industry benchmark through its renewed commitment to lean production. Chrysler made substantial progress with the support of suppliers. GM deserves credit for the growing maturity of its Global Manufacturing System, and Ford is demonstrating that focusing on quality will lead to better productivity.”

Despite the convergence of productivity numbers, Toyota proved most impressive during Harbour’s visits to their plants. Its productivity improvements, in some cases, were offset by a broader mix of vehicles, including the Tundra pickup and Sequoia SUV, more V8 engines and higher volume of the Camry hybrid. In addition, Toyota showed the most improvement in energy conservation, opening more floor space, reducing manufacturing time and line length, and increasing capital efficiency.

Unfortunately, the profitability gap between Detroit-based and Japan-based automakers remains wide. Chrysler, Ford and GM are suffering even more with falling sales of profitable fullsize pickup trucks and SUVs as consumers demand much better fuel economy. Honda and Nissan led the six largest North American automakers, each earning a pretax profit of \$1,641 per vehicle on their North American sales, followed by Toyota at \$922 per vehicle. Chrysler lost \$412 per vehicle for the first nine months of 2007, while GM and Ford lost \$729 and \$1,467, respectively, per vehicle for the full year. This reflects that the Detroit Three still pay more for health care, pensions and sales incentives. They also support more dealers relative to their respective market shares, than either Toyota, Honda or Nissan.

“There is no doubt, based on our visits to more than 20 plants over the last year that continuous improvement in manufacturing processes are taking hold in just about every company,” said Michelle Hill, vice president of **Oliver Wyman** and director of **The Harbour Report™ North America**. “Everyone is focused on reducing waste and building quality into their processes more than ever.”

Harbour noted that despite the focus on low labor costs in Mexico, the plants in that region are very lean and competitive with high quality even with less automation.

The innovative agreements the United Auto Workers reached with the three domestic companies likely will enhance their competitive position in the future.

First, the union agreed to a lower-tier wage – about \$14.20 an hour – for new hires. GM can hire these new workers to perform “non-core” work such as delivering parts to the assembly line, custodial services, and most work that doesn’t involve putting a part on the body of a car or truck. Ford and Chrysler can hire the lower-wage people for any hourly position as long as they don’t exceed 20% of their U.S. hourly workforce.

The lower-tier wage may lead Chrysler, Ford and GM to consider bringing the production of certain components and modules back into their assembly plants that have been out-sourced to suppliers who have paid their workers considerably less. How soon and how far any of the three bring work back in-house will depend on the number of high-seniority workers accept buyouts in the coming months.

In its first year in **The Harbour Report™ North America**, Hyundai Motor Manufacturing Alabama posted a very strong 20.62 assembly labor hours per vehicle at its Montgomery, Ala., plant that produces the Hyundai Sonata sedan and Santa Fe crossover. The plant’s productivity on the Santa Fe (22.58 labor hours per vehicle) was best for plants building midsize crossover vehicles.

In overall productivity, four of the six companies with assembly, stamping and powertrain operations in North America – GM, Honda, Chrysler and Ford – showed improvement in 2007. Neither Honda nor Nissan participated in this year’s report. The report does include assembly, engine and total manufacturing estimates for both companies based on publicly available data.

Among vehicle assembly plants, Chrysler’s new Toledo plant, which assembles the Jeep Wrangler, set the

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individual plant benchmark for labor productivity with a measure of 13.57 hours per vehicle, followed - by GM's Oshawa #1 plant that produces the Chevrolet Impala. Oshawa #1 posted a 15.18 HPV performance.

Chrysler's Toledo South plant features an innovative collaboration with three suppliers. Kuka Group manages the body shop. Magna Steyr manages the paint shop, and Hyundai Mobis handles chassis assembly for the Jeep Wrangler.

**The Harbour Report™**, the auto industry authority on manufacturing efficiency first published in 1989, measures assembly, stamping and powertrain productivity performances – plant by plant, and company by company – for North American automotive manufacturers. The labor hours per vehicle measure calculates the total salary and hourly labor content required to produce one vehicle.

By comparison, automakers in North America, on balance, have become very competitive globally, only slightly behind Japan, but ahead of most other regions. Although labor costs remain high, the weak dollar and new labor agreements have made North America a more attractive region for manufacturing.

Despite their continuous improvement in plant-floor productivity, Chrysler, Ford and General Motors still use significantly less of their assembly capacity than Toyota and Honda. For example, Chrysler and GM each assembled 88% of the potential number of vehicles they could produce on two 16-hour shifts for 235 days a year. Ford's assembly capacity utilization was 84%, up from 77% in 2006, but well below Toyota's 100% and Honda's 97%. The domestic manufacturers also have a wider range between their least and most utilized plants. Toyota had no plant running at less than 92% of capacity and none running at more than 107%. By contrast, GM's North American assembly plants ranged from 44% to 137%. Ford's were between 47% and 129%, while Chrysler's spanned from 46% to 126%.

Other highlights from this year's Assembly, Stamping and Powertrain chapters include:

### **VEHICLE ASSEMBLY**

CAMI Automotive, which produces the Chevrolet Equinox, Pontiac Torrent and Suzuki XL-7 in Ingersoll, Ontario, achieved a 17.59 HPV and the New United Motors Manufacturing Inc. (NUMMI) plant in Fremont, Calif., posted an impressive 18.96 HPV to lead all companies in North America.

Chrysler had four of the 10 most productive assembly plants: Toledo South (13.57 HPV for Jeep Wrangler); Belvidere (17.09 HPV for Dodge Caliber, Jeep Compass and Jeep Patriot); Jefferson North (18.68 HPV for Jeep Grand Cherokee and Jeep Commander), and Brampton (18.78 HPV for Chrysler 300, Dodge Charger and Dodge Magnum).

GM's Oshawa #1 and #2 plants finished second and third, respectively at 15.18 and 16.17 HPV). GM makes the Chevrolet Impala in Oshawa #1 and the Buick LaCrosse and Allure (for the Canadian market) in Oshawa #2. GM's Lordstown, Ohio, plant (Chevrolet Cobalt, Pontiac G5) finished seventh at 18.12 HPV.

Toyota averaged 22.35 labor hours per vehicle across the five North American assembly plants included in this year's report, compared with 22.05 hours per vehicle in 2006.

GM led in 11 of the 20 vehicle segments in which it competes: midsize non-premium conventional car (Buick LaCrosse and Pontiac Grand Prix/Oshawa), midsize non-premium sports car (Chevrolet Monte Carlo/Oshawa #1), midsize non-premium van (Chevrolet Uplander, Pontiac Montana SV6, Saturn Relay and Buick Terraza/Doraville, Ga.), midsize premium conventional (Cadillac STS/Lansing Grand River); midsize premium sports car (Chevrolet Corvette, Cadillac XLR/Bowling Green, Ky.); midsize premium utility (Saab 9-7X/Moraine, Ohio); large non-premium conventional (Chevrolet Impala/Oshawa #1) large non-premium utility (Chevrolet Tahoe, Suburban, GMC Yukon and Yukon XL/Arlington, Tex.); large non-premium van (Chevrolet Express, GMC Savana/Wentzville), large premium conventional (Cadillac DTS/Detroit-Hamtramck); large premium SUV (Cadillac Escalade/Arlington, Texas).

Ford led in five of 15 segments in which it competes: compact premium conventional car (Lincoln

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MKZ/Hermosillo, Mex.), mid-size non-premium pickup truck (Ford Ranger/Twin Cities), midsize premium CUV (Lincoln MKX/Oakville); large non-premium pickup (Ford F-150/Norfolk), large premium pickup (Lincoln Mark LT/Dearborn).

Chrysler led in four of 12 segments in which it competes: compact non-premium conventional car (Dodge Caliber/Belvidere), compact non-premium CUV (Jeep Compass, Jeep Patriot/Belvidere); compact non-premium utility (Jeep Wrangler/Toledo South), and mid-size non-premium SUV (Jeep Grand Cherokee/Jefferson North).

Harbour estimates show Honda remains very competitive. However, Nissan's performance suffered due to a drop in truck and minivan production at its Canton, Miss., plant.

### STAMPING

Harbour uses a stamping index that weighs several labor and equipment measures to create a composite score of stamping productivity. On that basis, Toyota's Georgetown, Ky., press shop ranked first, followed by Toyota Cambridge, Ont. and Chrysler Belvidere. Of the 10 best stamping plants, Toyota had three; Chrysler and General Motors, two; and Ford, Hyundai and NUMMI, one each.

"In 2007 Toyota was the best stamper, on balance, in the industry," said Harbour. "It is not a matter of spending more than competitors. It reflects regular kaizen improvement activities and the flexibility that comes with well coordinated engineering and manufacturing."

### POWERTRAIN

Four of the six largest companies improved engine productivity when comparing plants that were included in last year's report. Toyota still led the field at 3.13 HPE. Chrysler finished second at 3.35 HPE while GM was a close third at 3.44 HPE.

Chrysler's Global Engine Manufacturing Alliance plant in Dundee, Mich., turned in the best performance by an engine plant at 1.84 hours per engine, beating GM's Spring Hill, Tenn. plant (2.53 HPE).

Toyota's Georgetown, Ky. Engine plant finished a respectable third with 2.60 hours per engine, and its Buffalo, W.Va., plant was fourth at 2.66 HPE. GM had five engine plants in the top 10.

Chrysler maintained the lead it assumed last year over GM and Ford in transmission productivity, improving to 3.36 HPT from 3.39, while Ford came in at 3.62 and GM came in at 3.68 HPT. For the third time in the last five years GM's Toledo plant led all plants producing rear-wheel drive transmissions (2.37 hours per transmission) and was the No. 1 plant overall. Chrysler Kokomo had the best productivity measure among producers of front-wheel-drive transmissions (A604 line) at 3.51 HPT.

### OVERALL

More than just year-over-year performance, **Oliver Wyman's Harbour Report™** looks at several years of results to determine which companies are developing systems and processes related to quality, lean manufacturing, continuous improvement, worker involvement, technology, level of product complexity, process design and layout.

"Lean manufacturing and continuous improvement efforts do not always produce immediate improvements, nor are they immediately recognizable," said Ron Harbour. "But as shown in **The Harbour Report™ 2008** results, companies that are producing consistent, sustainable improvements to their manufacturing operations are providing automakers with a cost advantage over their rivals."

*More information and performance results can be found in **The Harbour Report™ North America 2008**, the annual study created and published by **Oliver Wyman**, a global consulting firm. **Oliver Wyman** acquired Harbour Consulting and **The Harbour Report™** in January, 2008. **The Harbour Report™** is considered the authoritative guide to automotive manufacturing in North America, and is a leading competitive analysis tool used by OEMs and suppliers to benchmark performance, develop strategies and improve operations. Copies of **The Harbour Report™ North America 2008** can be ordered through the company's website at [www.oliverwyman.com/ow/automotive.htm](http://www.oliverwyman.com/ow/automotive.htm), or by calling 248-649-4490 or toll-free at 800-208-1353. The report is \$595 and payment by credit card is accepted. More information about the report and **Oliver Wyman** is available on the company's website.*