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## Article reprint

The productivity check

# Darwinian process

How Ron Harbour, the author of 'The Harbour Report™', sees the future of OEMs around the world



Photo: BMW

# Darwinian process

Toyota & Co., Detroit's 'big three' and Europe's automotive manufacturers are huddling closing together – at least as far as their productivity ratios are concerned. We have cast a glance behind the scenes of the **global automotive industry** that is trimming its production processes to shape up in a difficult economic environment.

**T**he great evolutionary theorist Charles Darwin would have turned 200 this year. 'Survival of the fittest' is a Darwinian finding that has become part of management lingo and is currently proving a particularly popular quote in the automotive industry. After all, automakers want to show the world that they recognize the signs of the times and are positioning their companies accordingly.

But who will really emerge victorious from the global auto crisis? Who will be sidelined? And why? Those looking for answers to these questions like to turn to Ron Harbour. Ron Harbour is one of the few people on this planet who can rightfully claim to have been inside nearly all automotive manufacturing plants around the world. As an expert, long-standing automotive consultant and author of the Harbour Report™, the American inspects more than 50 production sites around the world each year. Together with his father Jim Harbour, Ron Harbour has been the driving force behind the de-

velopment of the company Harbour Consulting in Troy near Detroit over the past 29 years. In January 2008, the international management consultancy Oliver Wyman acquired the U.S. company.

## The journey is the reward

His countless visits to automotive manufacturing plants have sharpened Ron Harbour's awareness of the many, frequently small details that distinguish good or productive manufacturing processes from moderately productive operations. Whenever he can, he will start his tour of an automotive plant at its exit – in refinishing operations. "Refinishing is pure waste," says Harbour (see also cover interview). Inefficiencies, wastefulness, insufficient cost recovery – in the eyes of the trained business administrator, these are the pitfalls on the road to success. His credo: High product and process quality will boost productivity by reducing costs and efforts. "We continue to argue intensely – in the United States as well as in Eu-

## The Harbour Report™

The Harbour Report™, which was first published in 1991, is the leading benchmarking study on manufacturing performance in the North American automotive industry.

The Harbour Report™ conducts multi-year examinations of productivity, procurement and capacity utilization in the areas of assembly, pressing facility and drive train. By taking this approach, it can show which companies are successful in using development systems and processes that optimize quality, lean manufacturing, continuous improvement processes, the application of workers and technology, product complexity and work-flow design.

Since 1996 the Harbour Report™ has also been compiled for Europe, although – in contrast to the U.S. – it is not published. The results are provided exclusively to the participating companies. Since 2007 the Harbour Report™ has also been published for South America.



Who is best of all? High productivity and flexibility as well as product and process quality will determine the winners and losers of the crisis. Shown here: The BMW plant in Leipzig.

rope – about the fact that quality cannot be attained with ever more quality assurance and refinishing measures or inspections, but through high-quality design, products and processes,” Harbour notes. According to Harbour, the money saved as a result of quality and productivity improvements can be invested in an enhancement of technological equipment, higher-quality materials and vehicle performance. Higher quality levels, in turn, will strengthen the brand image and enable top players to push through higher product prices. Harbour is convinced that it is exactly this strategy that will help the embattled U.S. manufacturers survive over the medium to long term.

“The big three from Detroit have impressively proven their ability to boost their productivity,” Harbour says, quoting from the Harbour Report™ 2008 that testifies to this positive development. The Harbour Report™ 2008 is based on visits to more than 20 plants of Chrysler, Ford and General Motors as well as Honda, Nissan and Toyota in 2007. Among these six largest automakers in North America, the gap between the most and least productive has declined from 10.51 labor hours or 709 U.S. dollars per vehi-

cle to less than 3.5 labor hours or 260 U.S. dollars per vehicle since 2003. Chrysler showed the biggest improvement, cutting its total manufacturing labor hours per vehicle by 8 percent to 30.37, approximately the same number recorded by Toyota. “From a manufacturer’s standpoint, at least Chrysler, Ford and General Motors are entering the ring as fit as they’ve ever been,” Harbour believes. “This will help them as competition grows fiercer and consumers move to smaller, more fuel-efficient though sometimes less profitable vehicles.”

According to Harbour, the gap between the most and least productive manufacturers in Europe remains wide, ranging from less than 20 hours per vehicle at the best plants to more than 60 at the worst. While some automakers have made substantial progress toward the types of sustainable manufacturing processes that characterize the world’s best competitors, others have only just started or are just starting to

implement the most basic tools of lean production.

But time is money, and the current crisis calls for rapid change – and drastic rationalization. Says Harbour: “Given the split of the European market into the more mature and cost-intensive western European model and the more dynamic and low-cost eastern European model, the older plants in the West will be able to defend their position only if they can permanently operate near full capacity and at similarly low costs as their new competitors in the East.”

While Ron Harbour does not name any specific companies, a handful of figures point to the weaknesses he has identified in the European automotive industry: “One-third of the workforce at some European automotive plants work in quality assurance and the refinishing and repair of brand new cars,” Harbour points out. He also warns that, for all their love for flexibility, the European manufacturers frequently neglect efficiency considerations.



**“Toyota is raising the bar ever higher, no matter what progress has just been achieved.”**

**Ron Harbour, Partner, Automotive Practice Oliver Wyman**



Trust is good, control is better: Quality inspection at Toyota's Tsutsumi plant. High product and process quality leads to improved productivity by reducing labor intensity and costs.

Photo: Toyota

### Too much of a good thing is expensive

He cites the following negative example: six parallel welding stations for six different types of car bodies, including right- and left-hand sides, for the body shell of one model. Harbour clearly addresses the flexibility problem when he challenges existing processes: "Under certain circumstances, the elaborate six-fold framing station may perform better than the Toyota concept in the hours-per-vehicle comparison. But is it really the more productive approach?"

According to Harbour, Nissan and Toyota remain the benchmark when it comes to productivity and efficiency. It is little wonder, then, that Harbour keeps citing best-practice examples from Toyota plants to highlight forward-looking solutions – such as the Japanese manufacturer's framing concept which Toyota has implemented successively at all of its global plants since 2002. To assemble the undercarriage, sides and roof for the welding process, the required tools are led into the car body's interior at Toyota's framing stations. In conventional stations, the chuck tools access the car body from the outside. The Toyota solution offers many advantages: free outside access to the car body for the robot welders, a flexible feed of model-specific tools from tool magazines installed above the station, a high level of flexibility with respect to automation. The reward for this solution is 50 percent lower costs compared to conventional stations. Incidentally, Toyota installed

the first such station in a plant in Vietnam. Welding operations there are conducted exclusively manually – no problem for this engineering concept. From Harbour's perspective, the great challenge with respect to flexibility concerns the related costs. "We know from our many plant visits that there are great differences here. From the cost perspective, we identify savings potential of up to 30 percent at some manufacturers – at unchanged plant flexibility. The most flexible manufacturers can respond to declining demand or relocations to other market segments without plant closures." He cites the example of U.S. manufacturer Ford who successfully adjusted its production capacities to its changing market share in Europe.

According to Harbour, flexibility is also emerging as a key success factor in the incipient shift to smaller and more fuel-efficient cars. Ford has already responded to this development: Detroit's No. 2 is beginning to convert a large SUV assembly plant near Detroit to production of three models derived from its small C platform. However, it will take until 2010 to complete the retooling and engineering work before the smaller models go into production. And now the European manufacturers are increasingly encountering the same challenges faced by the U.S. automakers in their domestic market. "Toyota & Co. have known for many years how to make money with small cars. In addition, the Japanese manufacturers have

flexibly adjusted their product mix in response to changes in demand."

Audi, BMW and Mercedes-Benz continue to make good money with premium vehicles. But they are busy searching for low-cost production solutions for the small cars that all premium automakers are planning to launch. At Mercedes-Benz, this concerns, for example, the planned new plant in Hungary where its A and B class models are supposed to roll off the production line in the future.

### OEMs should scrutinize component production


Harbour advises automakers to scrutinize component production as well – in-house as well as at suppliers. "We have seen OEM plants that have stood up to the challenge of restructuring their component production and design production processes to align with the standards of an efficient plant – with amazing results: up to 70 percent less used space, the halving of the workforce at better quality and cost digression. In many cases, suppliers simply could not keep up with that," Harbour notes.

Tina Rumpelt ←

### The measure of all things: hours per vehicle

The Harbour Report™ uses the "unit" hours per vehicle as a standard of comparison. The number of labor hours per vehicle is determined by dividing the total number of labor hours by the number of vehicles produced during the respective calendar year. The result does not reflect the time required to assemble a car, but provides a key figure reflecting the labor intensity of vehicle production. Total productivity is based on the efficiency of pressing and stamping, assembly, engine and drive train plants.

The labor hours per vehicle reflect the amount of work performed by all workers directly or indirectly involved in vehicle production, including both temporary workers and the plants' permanent staff.



“High productivity is the result of excellent processes and high quality products.”

EXCLUSIVE interview with Ron Harbour, Partner Automotive Practice Oliver Wyman

Photos: AP / Cliff Serna

## “Do it right the first time”

“We are expecting a **consolidation process** unlike anything the sector has seen in a long time,” says Ron Harbour, the author of the Harbour Report™ and a partner at Oliver Wyman’s Automotive Practice since 2008. Harbour sees the crisis as a true test for companies: Those that take the right actions will emerge from the crisis in a strengthened position.

**The global automotive industry is battling the toughest crisis in its history. What worries you the most about the sector?**

It’s the protectionism being initiated by some governments. In the United States, two of the major automakers are already receiving government support. In return, the government gets a stake in these companies and gains a say in decisions.

**What would the alternative be?**

That’s a difficult question. Without the financial support from Washington, a lot of people in the U.S. automotive industry would lose their jobs. Looked at in this way, it is certainly better to use taxpayer money to ensure that the companies can continue to produce and people can keep their jobs.

**What do you think of the situation in Germany and Europe?**

In Europe, too, governments are providing financial support to companies. This aid includes reduced-hours compensation, which was just extended in Germany up to 24 months. Added to this are very stringent legal requirements covering such areas as CO<sub>2</sub> and fuel-consumption levels. In these areas, the governments are being particularly demanding. There seems to be the impression that the automotive industry has the necessary future technology tucked away in its desk drawer and that it will accelerate the introduction of it only through legally exerted pressure. But that is not the case. The automotive industry will have to pour a lot of money into research and development.

### **Has the global automotive industry already reached the absolute bottom of the crisis?**

In terms of sales figures, we have possibly reached a point where the downward spiral is losing speed. The critical question is: How long will we remain stuck at the bottom? In the worst case, it could be one year to two years. The only certain thing is that this crisis will be a test for many companies in the worldwide automotive industry.

### **Who will be the winners?**

As a result of the crisis, we will lose automakers, suppliers as well as dealers, lending companies and repair shops, that is, many companies that depend on the automotive industry. The companies that survive this weeding-out process will be the winners. They will emerge from the crisis in a strengthened position. At the same time, competition will lose its edge – fewer suppliers, less competition.

### **According to the Harbour Report™ 2008, the Big Three in Detroit have caught up with their major role model, Toyota, in terms of productivity and quality. Are GM & Co. being underestimated?**

As far as I'm concerned, the "Detroit Three" are being placed in a completely false light. The hearings held in the Senate gave the impression that GM, Ford and Chrysler had done nothing in past decades to improve their competitiveness. That is not the case at all. I know the companies very well and have been following them for a long time. I can only say that GM, Ford and Chrysler have made dramatic and very radical changes – in terms of improvements – in the past 20 years.

### **What are the strengths of U.S. automakers today?**

All three U.S. manufacturers are very well-positioned in the operational area today. Their product line today is also the best that they have ever had. Admittedly, U.S. vehicles are not yet among the leaders in global competition. But the Big Three are taking the right steps to catch the leaders.

### **Why is the U.S. automotive industry doing so poorly?**

The Big Three have lost their customers. And they lost them a long time ago. Anybody who is happy with another product is unlikely to be persuaded to change products. Added to that are the tremendous financial commitments from the distant past. Today, GM provides health-care coverage for five times as many retirees as for active employee – plus their pensions. These costs add up to \$2,000 to \$3,000 per vehicle. If these costs disappeared, GM, Ford and Chrysler would immediately become competitive.

### **The automotive industry is facing massive and rapidly growing overcapacities right now. Just how explosive is this problem?**

The overcapacities – and we are talking about 10 million to 20 million vehicles yearly around the world – have arisen over the past 10 years. The overcapacities and the related and high fixed costs are now having an impact. Cost competition is becoming tougher – among automakers as well as suppliers who have overcapacities of their own. One factor that complicates the situation is: Companies in the automotive industry are intensely working on flexibility as well as optimization of utilization in their production operations. Good examples here are BMW or Audi which produce in "breathing" plants

as part of an alliance and offset model-specific swings in demand as a result. The need for capacities disappears in the process.

### **What do you think of the trend in which OEMs are cutting back on outsourcing and are increasing assembling complex systems like cockpits in-house once again?**

In the past, outsourcing became a national sport – to put it bluntly. In this way, some costs could be quickly reduced. I have this to say: Many did it because they wanted to avoid the major costs associated with the retooling of their own component production according to the standards of efficient, lean production. They took the definitely faster and simpler approach, namely giving component responsibility to the suppliers, even if they faced the danger of losing expertise. Today, the OEMs are increasingly bringing the production of outsourcing components like dashboards or front ends back



**“Touch-up work is a complete waste.”**

Ron Harbour, author of the Harbour Report™

into their own companies. Because they have learned much in terms of efficiency in production. And because this approach secures jobs that would have been lost otherwise.

### **It is primarily the high labor costs at OEMs that serve as the major argument against in-house production of components. Is that true?**

We have seen OEM factories that have taken on this challenge in order to reorganize their component production and to design it according to the standards of an efficient factory – with astonishing results: up to 70 percent less space needs, half of the workforce at the same quality levels and, of course, with a corresponding cost degression. Suppliers were unable to keep pace with their offers.

### **Will the “insourcing” trend continue to grow?**

In economically difficult times, this is a question of financial strength. Some current plans will fail because of this. Setting up new in-house component production usually means a larger investment.

### **The crisis requires changes – and fast ones. Where do you think companies can start to quickly and efficiently meet the challenges?**

The key to success is always quality. High productivity is the result of excellent processes and high quality products. In the world's best factories, you will not see more than a dozen cars in the touch-up section. We have visited factories where more than 1,000 vehicles were waiting to be touched up. What's being done there is the most expensive, time-consuming and unproductive way to produce quality. Touch-up work is not a value-creating process in any way at all. Touch-up work is a complete waste. Being productive means: Do it right the first time!

*Interviewed by Tina Rumpelt ←*

# Recent Publications



## automotivemanager

Oliver Wyman's **automotivemanager** is the regularly published industry magazine for the automotive industry. Manufacturers, suppliers and dealers can draw on the trends, opportunities and solutions presented in this magazine as they conduct their daily business and determine their strategic direction. The topics covered in the magazine explore all aspects of the automotive value chain. The first issue of the **automotivemanager** 2009 delves into such subjects as costs, an area that will play an increasingly important role in efforts to sustainably secure earnings.

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## Truck Customer 2008

The commercial vehicle industry is evolving into a mature industry where specific customer know-how is becoming a more critical factor. The study "Truck Customer 2008" is based on a survey of about 1,000 truck customers in China, France, and Germany. It offers a comprehensive overview of customers' current and future needs, and provides strategic guidance to manufacturers.

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## Time to Act

For Oliver Wyman's new study on the recession, we conducted numerous discussions with top decision-makers in the capital-goods industry of German-speaking countries. The managers described the impact that the worldwide recession is having on their companies, the greatest challenges they face in the crisis, and the countermeasures they are taking. The study condenses the discussions into six recession theses.

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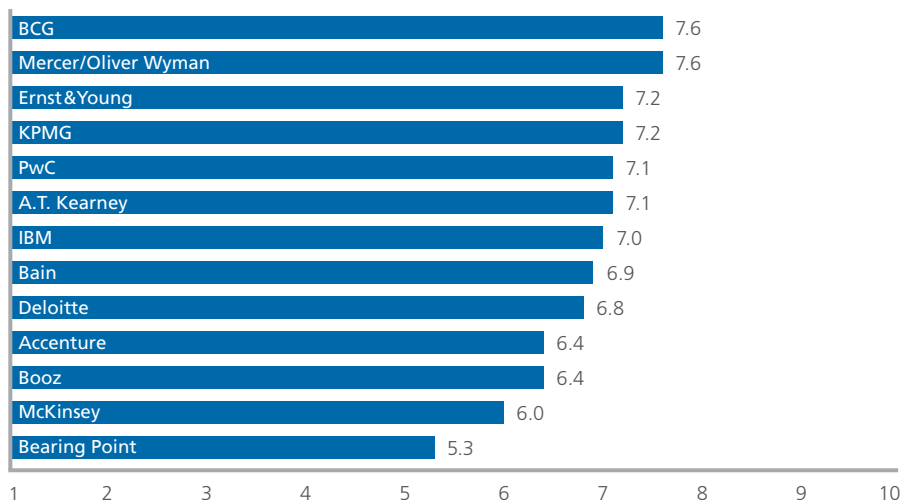


## Corporate Organization 2010

Corporations are once again being managed centrally. This trend is increasing as transparency, cost efficiency, and quick decision-making processes are necessary to effectively deal with the recession, according to the study "Corporate Organization 2010." The report says management models must balance central decision-making with flexibility and sufficient entrepreneurial freedom within the operating units to guarantee a company's future viability. The current crisis intensifies the need for action and creates opportunities for sustainably improving the management organization.

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## Oliver Wyman Achieves Top Scores in Customer Satisfaction



Rating: 1 = not recommended, 10 = highly recommended  
 Source: Customer survey carried out by Corporate Executive Board, 2008

In an international survey on customer satisfaction in the consulting sector, Oliver Wyman received the highest rating. The results clearly show that company size alone does not guarantee customer satisfaction.

For the study, more than 500 companies around the world were asked about their satisfaction with consulting firms. The survey was conducted by Corporate Executive Board, a 20-year-old U.S. company that focuses on research, benchmarking, and topics related to strategic consulting.

With more than 2,900 professionals in over 40 cities around the globe, Oliver Wyman is an international management consulting firm that combines deep industry knowledge with specialized expertise in strategy, operations, risk management, organizational transformation, and leadership development. The firm helps clients optimize their businesses, improve their operations and risk profile, and accelerate their organizational performance to seize the most attractive opportunities. Oliver Wyman is part of Marsh & McLennan Companies [NYSE: MMC].

For more information, visit [www.oliverwyman.com](http://www.oliverwyman.com)

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Oliver Wyman's global Automotive Practice supports clients with strategic topics like brand management, customer orientation, corporate and business strategies, market, competitive, and technology analyses, product development, innovation management, sales strategies and after-sales programs. Operational optimization includes purchasing, production optimization, efficiency improvement programs, reengineering, turnaround management and restructuring. In addition, Oliver Wyman offers the whole range of mergers & acquisitions consulting services, from partner search to evaluation, transaction support, and post-merger integration.

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