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EDITORIAL

German Suppliers: Leaders in Technology

In 2006 as well as in the first half of 2007, the German automotive supply industry has once again demonstrated its innovative and competitive ability with great success. Thanks in particular to the strong export business and the shift in responsibilities from vehicle manufacturers to suppliers, it was possible to increase revenue by six per cent to 72 billion EUR compared to 68 billion EUR the year before. Business with foreign customers went particularly well – export sales rose by nine per cent.

But global markets are not only important as sales markets, they are also attractive locations. Besides the often mentioned markets in Asia, numerous German suppliers are quite active on the nearby Eastern European markets. Poland, Hungary, Slovakia and the Czech Republic have become important production locations, due to low labour costs combined with excellent infrastructure and transport connections as well as skilled engineering workers.

This issue of auto.world analyses the current developments in Eastern Europe as well as in Spain and Egypt and evaluates the opportunities and challenges for German suppliers.

The current issue also focuses on innovative technological solutions made in Germany. In many markets, German automotive suppliers are not just leaders but constitute the benchmark, for example, in diesel technology, the avoidance of CO_2 emmissions, in safety and comfort technologies. German suppliers and OEMs will continue to lead the way.

I hope you enjoy reading the new issue of auto.world. ■

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Truck Cycles p. 6

Commercial vehicle markets in Western Europe are cyclical. Value added services as well as new sales and organizational models support consumer retention.

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Low Emissions

Matthias Wissmann, President of the German Association of the Automotive Industry (VDA), on the pioneers of climate protection. p. 26

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Mastering Challenges

CEO Dr. Martin Winterkorn explains how Volkswagen wants to become"the world's most fascinating car maker". p. 30

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Top Priority

Thomas Weber, Daimler Board member, explains the companie's ecologic innovations. p. 36

Commercial Vehicles Strategies

Commercial vehicle markets in Western Europe are cyclical. The development in these markets is currently marked by high modernization requirements, which are partially caused by more stringent legal requirements regarding environmental safety. Value added services as well as new sales and organizational models support consumer retention

TEXT: PROF. DR. WILLI DIEZ • DIRECTOR, INSTITUTE FOR AUTOMOTIVE RESEARCH (IFA) • AUTO.WORLD 2008

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Eighty percent of sales are achieved from 30 percent of 700 versions, hence 490 other versions are required to realize the remaining 20 percent. Radical simplification of product program while abandoning market share is as obvious as it is tempting.

Due to cost increases induced by federal measures and regulations and the simultaneous price pressure to be efficient in loading, price sensitivity of commercial vehicle customers in Europe will remain high. The task of having to fulfill various requirements surrounding environmental sustainability and safety, while reducing cost of ownership for the commercial vehicle operator, can be achieved only through the increased application of innovative technologies. The necessity to utilize scale effects in the commercial vehicle industry will continue to grow accordingly. Trucks represent highly specialized investment goods as customers expect vehicles optimized for their specific application purpose. The variety of versions is appropriately large. In contrast to the significantly larger sales volume in the passenger car business, the large variety of versions represents great challenges for truck OEMs (Original Equipment Manufacturers).

Radical simplification of the product program while abandoning market share is as obvious as it is tempting. Analyses reveal that a significant reduction of versions is impossible due to economies of scope.

Given the worldwide differentiated requirements and application conditions of trucks, the strategy of a "world truck", pursued by some commercial vehicle manufacturers, does not have much potential. Unlike the passenger car industry, scale effects cannot be realized on the level of complete vehicles. However, it is imperative to develop modular, globally applicable component systems, which encompass the important aggregates and components, especially the engine, gears, axles and electronic components. Rather than the standardization of entire vehicles, standardization on this level could achieve cost reduction, if realized on a global level.

Flexibility as the Answer to Market Cyclicality

A second significant challenge for the European commercial vehicle industry is coping with market cyclicality. In mature commercial vehicle markets demand fluctuates with the economy. Commercial vehicle operators can react very rapidly to the sinking and rising capacity utilization of their vehicle fleets. Due to the regionally different requirements for trucks, international compensation strategies are inefficient in the commercial vehicle market.

Three strategies to improve market cycle adaptability are revealed in the European commercial vehicle market: First, further reducing vertical integration in the final assembly plants, second, outsourcing the development and production of components. Third, the manufacturerers reduce "break-even" in the final assembly plants by decreasing the applied fixed assets as well as increasing flexibility of labor through work-time accounts and limited employment contracts.

Increasing flexibility of production structures may also affect subcontractors. However, they can profit from this development by reducing vertical integration and adapting their production structures to cope with fluctuating order volumes from the manufacturers.

DR. WILLI DIEZ

As director of the Institute for Automotive Research, Prof. Dr. Willi Diez is responsible for the study "Automotive Business" at the University Nuertingen-Geislingen. From 1979 to 1991 Willi Diez worked in various functions with DaimlerChrysler.

Besides technical services like maintenance, repair, and emergency services, financial and management services in the commercial vehicle business are gaining increasing importance. They not only fulfill an important function

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WORLDWIDE COMMERCIAL VEHICLE SALES (IN 1,000 EUR)

Country	2002	2003	2004	2005	2006*
Europe	2,619	2,717	3,061	3,184	3,196
Western Europe	2,128	2,083	2,271	2,338	2,430
Eastern Europe	491	634	790	846	766
America	467	481	624	705	765
NAFTA	381	389	505	583	640
USA	322	328	431	496	550
Mercosur	85	92	119	121	125
Asia	4,869	5,011	4,810	5,048	5,450
Worldwide	8,379	8,674	9,035	9,531	10,061

Source: VDA/Institute for Automotive Economy (IFA)
*Without light trucks; **MPV and SUV counted as passenger cars from this year.

of securing sales and customer loyalty, but also have a substantial revenue potential.

Services for Customers

The trend in the financial services sector is clearly moving away from classical purchase financing to leasing and contract hire. In particular, short-term rental is expanding, as it allows the covering of peaks in demand, the circumvention of delivery delays for new vehicles, and simplifies the on-time use of trucks with special structures.


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Leasing and contract hire have the advantage of extensive cost security, prevention of operating risks, and a lower administrative load. Both leasing and contract hire are intended to be easier on liquidity and lead to a relief of the financial statements, resulting in better financial statement relations in view of Basel II.

Leasing and contract hire allow manufacturers of commercial vehicles to increase added value per vehicle due to the service binding achieved. Additionally, sales can be better planned as a result of defined procurement intervals.

Vehicle fleet and fleet management is another services sector. It comprises the evaluation of all vehicle fleet-relevant data (trip recording, condition checks, service planning, analysis of use, etc.), the support for trip planning (order and message management, trip monitoring, and evaluation, etc.) and locating of vehicles (position display, breakdown support, etc.)

From Truck Manufacturer to Mobility Provider?

The vision of the future truck manufacturer no longer marketing vehicles, but rather transport kilometers, is behind the growing offer of services. The truck customer should concentrate on its core business and procure transport kilometers only as required from its mobility provider. This would mean complete outsourcing of the transport function for conveyance service providers or for companies with their own transport.

The prerequisites for sales and service of trucks have undergone lasting changes in the past few years. Prod-

ucts became ever more complex, and the customer landscape has increasingly differentiated itself and become more international. In addition, competitive and economics pressure have become so intense that suboptimal structures and non-value-adding processes can have a lasting endangering effect on the economics of dealer and service companies. As a result, many commercial vehicle manufacturers are looking for a new configuration of their sales and service networks.

The structure of sales systems is essentially determined by three influencing factors: product, customer and legal framework.

When these factors are taken into consideration, it becomes clear that sales of trucks should be organized differently to sales of passenger cars. The ramification of these differences is that the classical retail model for sales of passenger cars is still warranted, even if it should be further developed in many instances. However, sales of medium and heavy trucks in future should be oriented to the key account management (KAM) model, dominating the Business to Business (B2B) sector. This means that trucks sales lose their link to the location. Eventually the sale is concluded via relatively independent key account managers, acting as competent contractor for the relevant customer.

For many decades sales and service of medium and heavy trucks have oriented themselves on the classical retail model of passenger car business. Now they are looking for a new sales model.

Satellite Concept: Optimal Organizational Principle

Sales and service have different requirements regarding dispersion of locations. Since sales will become more customer site-related in future, the network of sales support centers for trucks can be diminished. Conversely, service still requires a high degree of area coverage in order to minimize travel times for the customer, especially for unscheduled repair shop visits.

Against this backdrop, the satellite concept offers an optimal organizational principle for the structure of the sales and service networks in the truck market. It is based on the idea of centralizing sales and decentralizing service as far as possible and economically viable. The main operation represents the "hub", and combines sales and service: the sales and industrial activities are controlled from the hub within a defined area. At the same time the service satellites act as service centers, and use customer contact to facilitate sales of vehicles, which are concluded via the main operation.

Challenges and Trends in Commercial Vehicle Service

Service business and the associated parts business is of great importance in the commercial vehicle market, representing an important source of revenue for manufacturers and dealers. Service is also one of the most important ways to secure customer loyalty; high service satisfaction is a prerequisite for follow-on purchases. Service business is far less vulnerable to economic cycles than new vehicle sales. In view of the future development of the service business, it must be assumed that maintenance and repair expenditure per vehicle per year will decrease. Customer requirements, including longer service intervals and improving vehicle quality, support this argument.

The service of commercial vehicles is influenced by a number of factors, e.g. customer expectations, employed technologies, economic requirements and legal framework.

Normally, the requirements for commercial vehicle service increase in terms of the necessary investment in repair shop equipment and qualification of employees. The economic

pressure on commercial vehicle service will grow due to increasing operational costs from rising fuel prices and tolls. Price leeway of commercial vehicle operators in the competitive market will also be tightly limited

Based on the results of our survey, the following eight trends regarding commercial vehicle service can be identified.

1. One-stop shopping

In order to increase value adding and reduce vehicle downtimes, the commercial vehicle repair shop must be able to perform all maintenance and repair work on trucks.

2. Extension of openingtimes

Ensuring a high availability of vehicles requires longer opening times into evening hours and over weekends from commercial vehicle repair shops. Even if the economic viability of such prolonged opening times cannot always be ensured, customers demand this service.

3. Offer of service contracts

Almost all commercial vehicle manufacturers currently offer service contracts, comprising varying scopes of service. A reliable basis for calculation is offered to the customer, and the repair shop achieves a high degree of customer binding and possibly an increase of value adding per customer.

4. Forward integration of OEMs

Some manufacturers have been expanding their activities in service through additional in-house service support centers or by taking over dealer repair shops.

5. Displacement of own repair shops

Many operators of their own repair shops have concluded that due to the growing technical complexity of vehicles, no real cost advantage can be achieved this way.

6. Independent providers

Commercial vehicle manufacturers and their contracted repair shops will probably experience increased competition from independent providers, especially for simple routine work. Active marketing of service contracts will become more important.

7. Multi-brand service

Smaller manufacturers may seek to latch their own brand onto service operations of larger manufacturers as an alternative to exclusive operations.

8. Separation of truck services

Manufacturers of commercial vehicles and their contractual partners have to increase value adding per vehicle by means of customer binding. Increased penetration of financial services, especially leasing and contract hire, as well as offering service contracts will be important.

Branding and Customer Relationship Management

In the commercial vehicle business, brands are far less important for market success than they are for passenger cars. The importance of a brand can be reduced mostly to the prestige function for the purchaser.

B2B business relationships consist of hard factors such as quality, technology, and price, and soft factors such as openness, honestly, sympathy, and trust. This is where the importance of commercial vehicle brands comes into play. Brands not only fulfill a prestige function, but also a trust function: strong brands have a greater trust potential than weak brands. In view of the relevance of brand strength for purchase decisions, brands will have to be more strongly planned in future and the relevant brand-technical instruments will have to be employed.

There is a close relationship between brand policy and customer relations: The brand always embodies a promise, which is credible for the customer only if it is experienced in actual encounters with the products and people working for a brand. CRM should therefore seek to ensure a brand-adequate quality of relationship. Approaches for commercial vehicle-specific CRM are key account management, active customer contact management, qualified information offers within the framework of events and trucker clubs.

Conclusion and Forecast

The development of the mature commercial vehicle markets, especially in Western Europe and North America, is likely to continue to be affected by high cyclicality. The challenge for commercial vehicle manufacturers is to lower the breakeven by varying fixed costs, in order to be able to remain profitable even during recessive market development. In addition, sales and service should be adapted to the changing market and customer structures.

This article is based on the KPMG/IFA study: "The European Commercial Vehicle Industry in the Age of Globalization" released in 2007. ■

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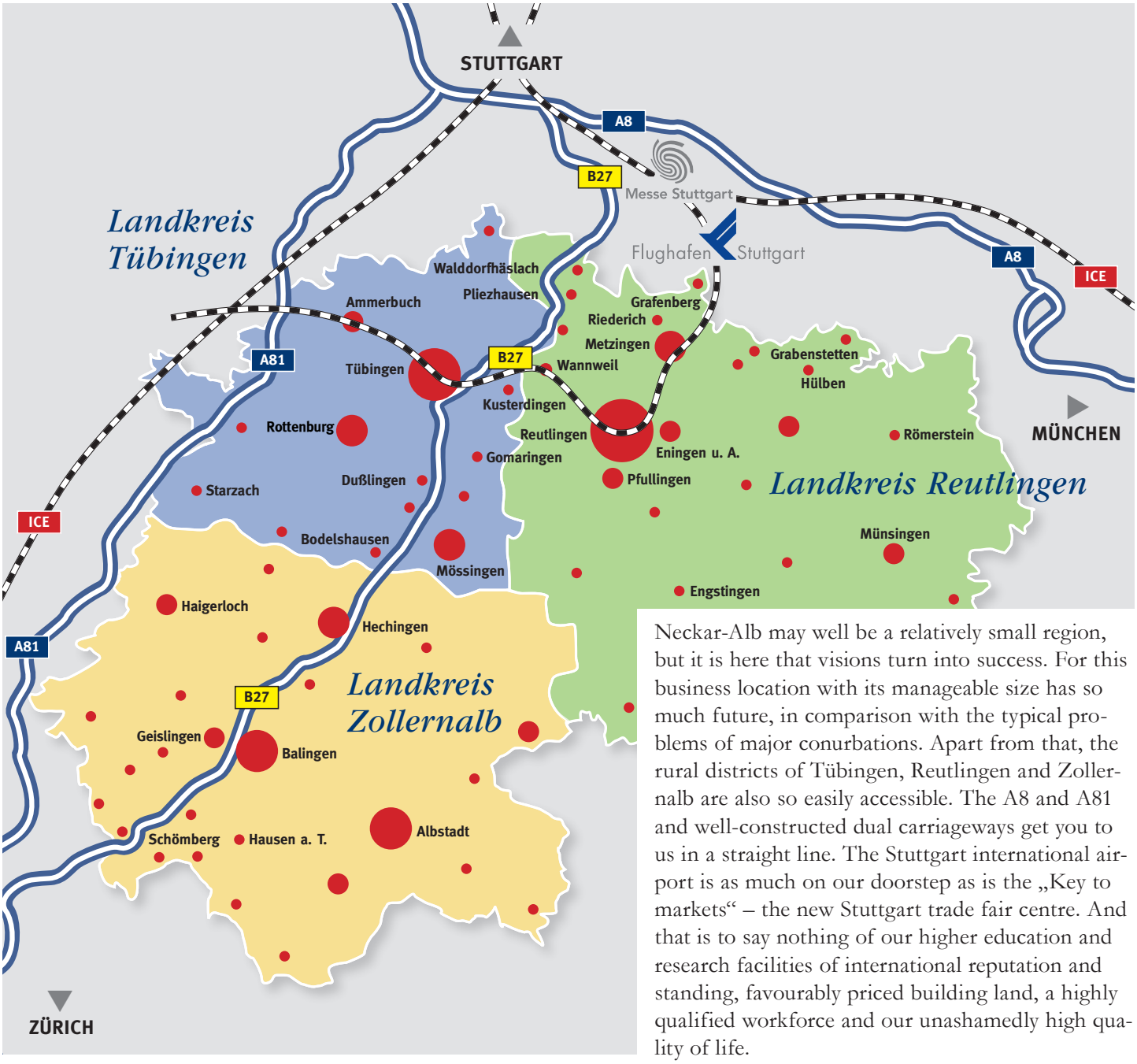
What's the future worth if you don't invest in it?



Neckar-Alb may well be a relatively small region, but it is here that visions turn into success. For this business location with its manageable size has so much future, in comparison with the typical problems of major conurbations. Apart from that, the rural districts of Tübingen, Reutlingen and Zollernalb are also so easily accessible. The A8 and A81 and well-constructed dual carriageways get you to us in a straight line. The Stuttgart international airport is as much on our doorstep as is the „Key to markets" – the new Stuttgart trade fair centre. And that is to say nothing of our higher education and research facilities of international reputation and standing, favourably priced building land, a highly qualified workforce and our unashamedly high quality of life.

You can learn all about this and much more about the innovative region here: **www.neckaralb.de** or at **www.tourismus-schwaebische-alb.de**.

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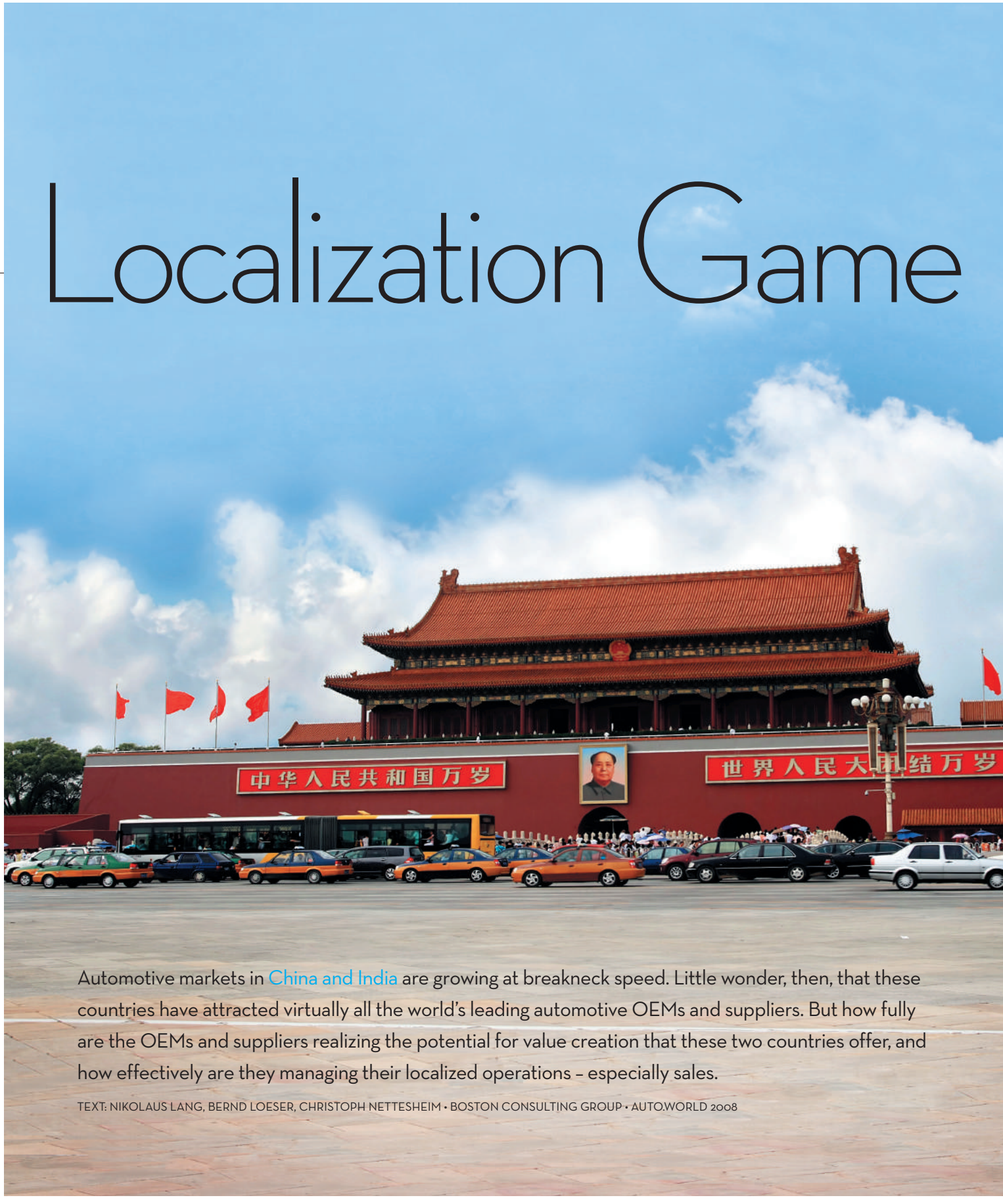
Localization Game



Automotive markets in China and India are growing at breakneck speed. Little wonder, then, that these countries have attracted virtually all the world's leading automotive OEMs and suppliers. But how fully are the OEMs and suppliers realizing the potential for value creation that these two countries offer, and how effectively are they managing their localized operations – especially sales.

TEXT: NIKOLAUS LANG, BERND LOESER, CHRISTOPH NETTESHEIM • BOSTON CONSULTING GROUP • AUTO.WORLD 2008

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By 2015, China and India are expected to represent more than 20 percent of the global car market. Suppliers and OEMs have been particularly attracted to those markets. But how effectively are they managing their localized operations?

In China, annual sales of passenger cars and light commercial vehicles nearly quadrupled from 2.1 million units in 2001 to 8.1 million units in 2007, growing at a CAGR of 25 percent over the period. India's annual sales grew at a slower but still very dynamic pace of 15 percent CAGR over the same period, from 0.7 million to 1.7 million units. Although these rates will slow in the years ahead, both markets will continue to expand much faster than the Triad markets.

Driving Sales: Challenges for OEMs

As foreign competitors have rushed to these fast-growing markets in recent years, the market shares of established local car manufacturers and of pioneering foreign OEMs have plummeted. Meanwhile, significant overcapacities and increased customer requirements have put strong pressure on the margins of many OEMs, which need to offer much more elaborate models at very competitive prices. So, to stabilize their market shares and to boost their profitability, most OEMs need to take their sales to the next level, boosting sales volumes and attracting new customer segments. Key strategic issues in this quest include which products to offer in which cities and regions, and how to organize locally for growth. OEMs are exploring ways to expand new-car sales, sell higher-value-added products, and manage their expanding sales organizations.

The two most promising ways to expand new-car sales in China and India are to increase the density of sales networks, especially in tier-three to tier-five cities, and to customize product portfolios to local requirements and aspirations.

In China, sales networks are currently three times denser in large, tier one cities such as Beijing than in tier three cities. To expand new-car sales, OEMs need both to increase the density of their networks in regions and cities where they are already present and to expand their networks into currently untapped regions and cities. Dealer networks should also better reflect the distribution of both population and wealth.

To achieve these goals, OEMs can pursue various sales-network strategies. A volume-oriented OEM targeting rural middle-income populations, for example, should consider a wide-coverage network that sacrifices some density in tier one cities in order to ensure that the network covers smaller cities where lower-income people may live. By contrast, a concentrated network approach is more appropriate for a premium-oriented OEM targeting urban people with high incomes.

Another way to increase sales volumes in China and India is to tailor products specifically to local market tastes and preferences. In the past, foreign OEMs tended to offer RDEs outdated models from their home markets. Today, customers in China and India are far more knowledgeable and sophisticated in terms of technology and innovation. So, to meet those increasingly stringent requirements, OEMs are pursuing three types of strategies for localizing products: slight revamping, extensive customization, and low-cost design.

In the slight revamping approach, OEMs adapt a few features or specifications on their cars to meet local requirements with limited R&D investment. As many cars in India are driven by chauffeurs, OEMs enhance the back seats of their vehicles with features such as reading lights, audio controls, and cup holders. This approach is used primarily by makers of premium cars. With the extensive customization localization strategy, OEMs aim at achieving greater conformity with market demands by adapting the cars' exterior and interior designs. Because

© BMW

Indian and Chinese consumers are becoming increasingly demanding and their requirements increasingly diverse.

Most foreign automotive companies operating in China or India are achieving quality levels similar to those in their home countries—in terms of customer rejection rates.

Localization in China is more advanced than localization in India. Suppliers have progressed further in the localization process than OEMs have.

this approach requires considerable investment in development, it is suitable mainly for mass-market vehicles. The third way to localize products is to use low-cost design to develop completely new products for the Chinese and Indian mass markets. To offset the relatively high R&D costs of such development, these new products must achieve very high sales volumes – ideally selling not only in China and India but also in other low-cost countries. Alternatively, developing low-cost cars by using as many carryover components and modules as possible can be an economically interesting option.

Selling Products that Add more Value

In their home countries, international OEMs offer a wide variety of value-added products, including financial services to promote new-car sales, after-sales services to support customers and keep their cars running, and used-car businesses to support a smooth resale process. In all three activities, the markets in China and India are less mature than Triad markets. Clearly, OEMs need to consider their after-sales strategies when planning to extend their sales networks, because these activities cannot be undertaken independently.

Sales Organization

As an OEM's sales in China or India grow, its sales organization must be aligned with that growth in terms of its structure, processes, and people. As their sales organizations grow, companies need to decide early on which new functions to introduce and how much to grow existing functions, such as marketing and after-sales strategy. For example, an OEM selling 30,000 vehicles a year usually does not need a direct sales department that focuses on key accounts such as large corporate customers, government organizations, or rental-car companies.
However, by the time an OEM reaches a certain level of sales—say, 300,000 vehicles—it does require such a function, as well as other new functions, including volume planning and IT management.
Car manufacturers also need to clarify the degree to which their current sales processes are market specific or can be bundled into regional shared-services centers. They must also apply methods and systems to adequately ensure the sustained high performance of their dealer organizations in China or India. Furthermore OEMs need to identify the skills they will need to acquire or develop to support their expanding networks and product offers. In general, they require people with solid knowledge of the regions or cities in which the OEM intends to grow, as well as people with expertise in specific fields such as the used-car business or financial services. It is important to develop strategies for meeting these needs in China and India through recruiting, transferring, and training—and then retaining—skilled staff.

Driving Sales – the Challenge for Suppliers

Many foreign automotive suppliers, including virtually all tier one suppliers, have established production facilities in China and India, most of them located close to foreign OEMs' plants. Their presence reflects both local-content requirements and their clients' expectations. These suppliers have benefited from the strong

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THOUSANDS OF ENGINEERING GRADUATE IN CHNA AND INDIA*

Year	China	India
2003	685	294
2004	868	327
2005	1,164	369
2006	1,436	~ 400**
2007	~1,800**	~ 450**

* in 1,000; ** estimated; Source: BCG analysis

growth of automotive manufacturing in both countries, driven primarily by surging domestic demand. This growth is expected to continue, provided that foreign and domestic OEMs begin making large-scale exports to other markets, as Hyundai does in India. In fact, in 2006 the Korean OEM exported 113,000 locally produced Accent, Santro, and Click models, and it intends to ship 260,000 to 270,000 units by the end of 2008.

However, most foreign auto suppliers have not yet managed to fully tap the potential of these markets. For instance, although the Chinese market's share of global car sales in 2007 was almost 12 percent, foreign tier-one suppliers made just 2 to 8 percent of their global sales in China. The reason for this discrepancy is that foreign suppliers have been more successful at selling to foreign OEMs than to local OEMs. In fact, only an average 15 percent of the total China sales of the suppliers interviewed for this study went to local OEMs, while 85 percent still went to the local subsidiaries of international OEMs. Given the fact that local OEMs produce roughly half of the cars sold in China and India—and will continue to command a substantial share of those markets into the future—it is essential for foreign suppliers to find ways to do business with them.

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For large international suppliers, serving global premium-oriented OEMs, such as BMW in China does not differ significantly from serving them in their home markets

The challenge that foreign suppliers face in selling to local OEMs in China and India involves the substantial differences between foreign and local OEMs in terms of their requirements for prices, products, and processes. For example, foreign OEMs practice a very transactional approach to sourcing in China and India—one that is very similar to the approach they practice in their home countries. But local OEMs require a more relational sourcing approach, in which technological support and sales go hand in hand. Compounding this difficulty, from the suppliers' point of view, is the fact that foreign OEMs are expanding their local supply bases and searching for local suppliers, which can sometimes offer products better suited to local production—at lower prices—than the foreign suppliers can.

To expand their sales in China and India, foreign suppliers need to address three important issues: broadening their customer bases, tailoring their products to the needs of local customers, and building an effective local sales organization.

Broadening Customer Base

To broaden their customer bases in China and India, foreign suppliers need to understand various customer segments in detail and identify the specific requirements of car makers in each segment. OEMs can be differentiated into four segments on the basis of the prices of the cars in their portfolios, their demands for quality and technology, and their place of origin: local volume-oriented OEMs, local premium-oriented OEMs, international volume-oriented OEMs, and international premium-oriented manufacturers.

Only very few foreign suppliers manage to serve local volume-oriented OEMs, such as Changan and Harbin Hafei, which focus heavily on low cost and simple design. Local Chinese suppliers clearly are better positioned to serve these OEMs, thanks to their cost advantages and existing relationships. There are few chances for foreign suppliers to win new customers in this segment; certainly they cannot win on cost alone. The most effective ways for them to increase penetration are to acquire existing local suppliers or to offer the OEMs advanced technologies, related coengineering services, or other knowledge or skills that the OEMs cannot get elsewhere.

Local premium-oriented OEMs, such as Chery and Geely, have been the main target of foreign suppliers, as companies in this category look for technological partnerships rather than simple supply transactions. Furthermore, because many of these OEMs plan to export more of their cars to Triad markets, they require state-of-the-art technology. Suppliers benefit most by entering into technological partnerships with these OEMs and transferring experience to China or India from other emerging markets, such as Brazil. For example, one Euro-

pean supplier of lighting, power trains, and electronic systems sells a considerable share of its products to local Chinese OEMs—as high as 70 percent in some categories—by leveraging its experience from other low-cost markets. Its engineers are accustomed to looking for low-cost solutions. The supplier's main challenge today is to stay ahead of competitors in offering advanced technology at affordable prices.

International volume-oriented OEMs in China and India, such as General Motors and VW, focus mainly on selling models that they are already selling in their home markets. To serve these OEMs in China and India, foreign suppliers can continue to build on existing relationships with them in their home markets, providing the same components at reasonable prices. However, the increasing need for local adaptation in China and India means that these OEMs are also opening their doors to local suppliers, with the result that competition is intensifying. Furthermore, international OEMs are beginning to negotiate worldwide contracts for new platforms in China and India to achieve higher purchasing power. So foreign suppliers need to continually introduce superior technology and services, as well as keep their prices competitive, to maintain their strong position with these OEMs.

For large international suppliers, serving international premium-oriented OEMs, such as BMW and Lexus, in China or India does not differ significantly from serving them in their home markets. Most premium-oriented OEMs seek to source locally primarily in order to comply with local-content regulations. These OEMs rely heavily on their existing bases of international suppliers, requiring them to localize and willingly paying a premium to source from companies they know well. So there is limited potential for a foreign supplier that localizes in China or India to serve a premium-oriented OEM there—unless the supplier is already selling to that OEM in its developed markets. Local suppliers, similarly, face a tough battle to win contracts from these OEMs. However, even entrenched suppliers should keep a close eye on developments at both their customers and their competitors.

In 2007 China alone graduated some 1.8 million trained engineers, while India graduated about 450,000—and these numbers are expected to continue to increase.

Source: Global Insight 2006, BCG analysis, Photo: Daimler

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Tailoring Products to the Needs of Local Customers

In tailoring products to local market requirements, companies can take either a top-down or a bottom-up approach.

The Top-Down Approach makes sense for foreign suppliers responding to an explicit demand from a multinational OEM to adapt an existing part or component to meet local market requirements. The adaptation in question may take many forms, ranging from adapting products only to local regulations or making simple technical adjustments, to reducing specifications or making material changes. All these moves may need to be validated by headquarters. Companies that take a top-down approach report cost savings of as much as 20 percent.

In the Bottom-Up Approach, products are designed from scratch to meet local market requirements. This strategy becomes necessary when companies must meet very low price levels and cannot do so by adapting existing products. The biggest challenge in taking this approach is transferring the relevant know-how, because local engineers are generally inexperienced with the supplier's product range, but expatriate engineers lack the necessary experience to conduct truly low-cost design. To bridge this experience gap, foreign suppliers can make strategic acquisitions to gain access to engineering skills related to low-cost design. They can then leverage these abilities to gain competitive advantage in other low-cost markets.

Building an Effective Local Sales Organization

In structuring their local-sales and key-account-management organizations in China and India, foreign suppliers

Although a large number of established multinational OEMs and suppliers have launched manufacturing operations in China or India, building more than 150 factories in the two countries since the mid-1990s, cost savings have been disappointing. serving them in their home markets

need to consider how to configure them internally, how to design an optimal cooperation model with customers, and how to ensure an appropriate level of support from and involvement by the company's headquarters.

Internal Configuration of the Local-Sales and Key-Account-Management Organization: The local sales team should consist primarily of key account managers from the local market. In China, only Chinese people are able to apply guanxi—the basic dynamic that is essential in creating effective personal networks and that enables one person to prevail upon another on the basis of a feeling of mutual indebtedness and relationship.

To gain access to skilled local sales managers, foreign suppliers frequently poach their rivals' employees, hoping to hire managers who have existing relationships with local OEMs. As a result, annual attrition rates are in the range of 20 to 30 percent. Companies absolutely require attractive retention schemes for local sales managers in order to safeguard this localized sales interface. Another approach is to acquire entire local companies, thus gaining not only relevant skills but also access to local OEMs.

A Model for Cooperation with Customers: Each local sales organization needs to choose among several kinds of cooperation models: conducting transactions, offering light support such as helping customers define their R&D requirements, and forging more strategic collaborations—for example, through technological partnerships. Especially when serving local premium-oriented OEMs, foreign suppliers that have the latest know-how can benefit by positioning themselves as valuable technological partners. For example, a European supplier of power train technology was able to establish a strategic partnership with two local OEMs to further develop transmission systems that the supplier had already marketed in other low-cost-country markets.

Support from and Involvement by Headquarters: Foreign suppliers should tailor their relationships to senior management at the company's headquarters to local market requirements and even to specific customer segments. For example, suppliers serving local Chinese customers must be able to make decisions quickly and therefore need considerable autonomy and decision-making rights. When serving international customers, the local sales office needs close collaboration with headquarters because tenders are becoming ever more international in scope.

As local car manufacturers become increasingly prominent in the Chinese and Indian automotive markets, foreign suppliers will find that their long-term success rests on devising effective ways to sell to these players. Essential ingredients in every solution will include a strong local sales staff and a cooperative, technology-driven mode of interaction. ■

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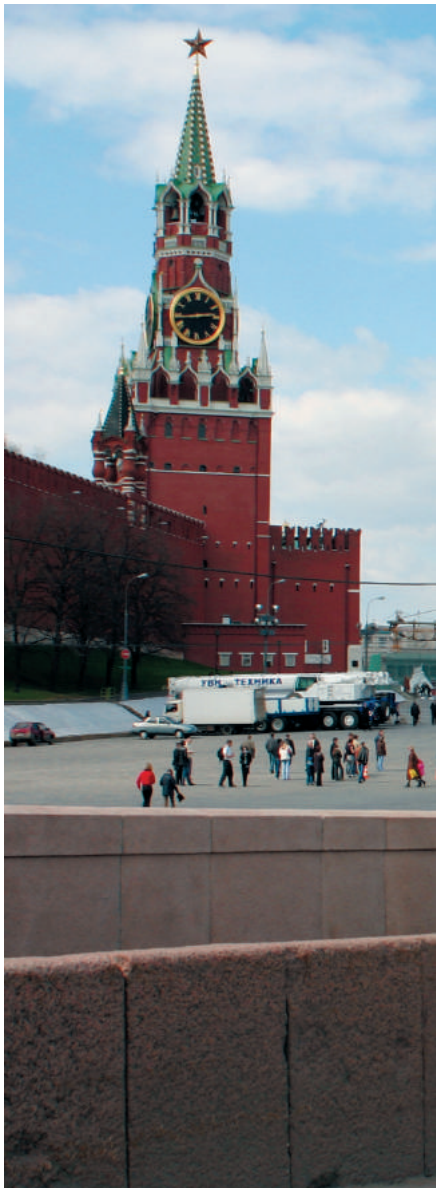
Eastern Strategies



The Central and Eastern European region (the CEE region) represents dynamic economic growth and stability. Its proximity to established Western European markets presents a unique opportunity for car manufacturers and suppliers looking for sales growth or lower-cost production close to a major market region.

TEXT: PETER FUSS, AUTOMOTIVE INDUSTRY LEADER CEE, ERNST & YOUNG • AUTO.WORLD 2008

While sometimes regarded as a single region, the individual countries of the CEE region possess distinctive characteritics. For example:

› Global player Russia: With an expected market of more than two million vehicles by 2011, Russia is alone among the CEE countries in having a market potential to match those of some of the larger markets in Western Europe.

› Major production centres Czech Republic and Slovakia: These countries have been the recipients of major investments in new car manufacturing plants. The Czech Republic and Slovakia could become significant exporters of vehicles, with more than 75 per cent of their production estimated to be exported. This fact places these countries in a unique position in the global industry with respect to the level of the region's reliance on exports. The CEE region could become a major export hub, feeding local and Western European markets, and a major centre for production by suppliers. However, labour markets already show signs of potential overheating. New plants have been announced, but are not yet operational.

› Strong domestic markets, significant net exporters Poland, Turkey and Romania: These countries have the potential to develop domestic markets of more thant 350,000 units within five years, and are projected to have production capacity well in excess of this in the same time frame. Hence, Poland, Turkey and Romania could become major export hubs. In addition to its passenger car production, Turkey is also becoming a regional centre for large commercial vehicle (LCV) production. Ford Motor Corporation (Ford) recently announced their acquisition of the former Daewoo plant in Craiova, Romania and plans to invest close to one billion EUR to modernize the plant to increase production to 300,000 cars per year. Upon completion of this project, Romania could become a significant net exporter of vehicles.

› Smaller players Blugaria, Hungary, Slovenia, and Ukraine: The remaining countries in the region are expected neither to have large domestic markets nor significant export capability in the foreseeable future.

KEY MACRO-ECONOMIC DATA OF SELECTED ECONOMIES

Country	Real GDP per Capita (in USD)	Unemployment (in percent)	Vehicles/ 1,000 people	New passenger Car sales
Bulgaria	9,766	9.6	353	27,000
Czech Rep.	21,220	7.2	404	121,000
Hungary	14,639	7.5	316	182,000
Poland	13,122	14.9	338	239,000
Romania	7,477	5.2	163	256,000
Russia	15,224	7.1	189	1,849,000
Slovakia	18,165	10.4	243	59,000
Slovenia	22,362	9.4	474	59,000
Ukraine	8,314	7.4	115	371,000

Source: Global Insight, 2006

Size of the CEE Region Market

It is expected that the entire CEE region will account for approximately 5,5 million passenger cars sold by 2012. Compared to the 15,3 million passenger cars expected to be sold in Western Europe, the CEE region market might initially be perceived as a comparatively small market. However the reflection that it needs 22 full-fledged and fully utilized car manufacturing plants with the capacity to build 250,000 units each tells a different story. Looking at the sales side of the business, the increase of 3,3 million cars to be sold in the region by 2012 represents the need for an estimated 9,500 additional new dealerships across the region to sell these cars to customers, assuming each dealership sells about 350 cars per year. These reflections, which try to translate the number of cars sold into either manufacturing plants or automotive dealerships, begin to explain the magnitude of investment going into the region, as well as the level of business activity, including employment, that is connected to the boom of the automotive industry in the CEE region as a whole.

Market Share Fluctuations

When comparing the number of cars, sold by brand between 2002 and 2006, market share fluctuations

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emerge. The market-leading brands in 2002 did not sustain the leading sales ranking in 2006. For example, while Lada continues to be the top-selling brand across the CEE region with a historically strong position in its home market Russia, Lada does not participate in the growth of the marlet, and therefore lost market share. Skoda, which was the second best-selling brand across the CEE region in 2002, achieved a slight increase in absolute terms but lost significant market share compared to other brands. In contrast Western brands such as Ford, Toyota, Chevrolet, and Hyundai moved up in their market shares quite significantly, as these brands captured above-average growth. In addition, Renault defended its third place position among top-selling brands across the region.

Ernst & Young believes a few root causes drive this market share fluctuation across the CEE region. First, compared to Western Europe, customers across the CEE region seem to have less brand loyalty. As many customers in the CEE region buy their first vehicles and many new brands approach the CEE region markets, one may realistically theorize that brand loyalty simply has had little chance to develop. Sales statistics seem to support this theory. Second, new entrants to the CEE region markets, such as the Korean Hyundai brand, enjoyed significant volume and market share growth in the CEE region in the five-year review period. Chevrolet, as well, enjoyed extraordinary success. However, it remains unclear as to whether the brand's growth may be attributed to organic growth, to capturing customers from the former Daewoo brand which General Motors (GM) acquired in 2001 and started to re-badge to Chevrolet in 2003, or a combination of the two.

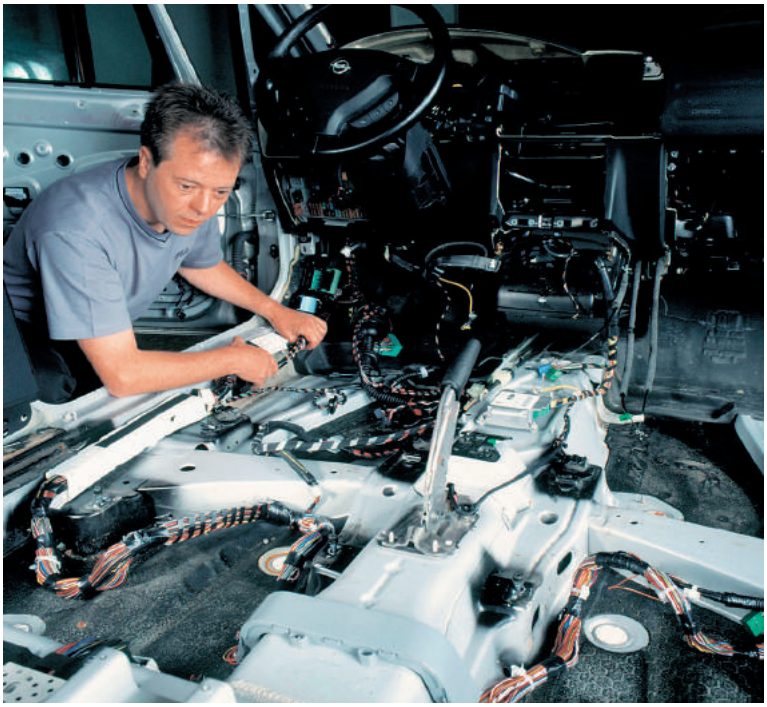
Companies have to spend significant amounts of money to train new employees, create benefit schemes to retain a skilled workforce, and keep up with wage levels that are spiraling-up quickly.

VMs Apply Different Strategies

The view of projected sales and production activity by vehicle manufacturer (VM) groups as of 2008 tells a story about basic strategies applied by OEMs for the CEE region.

› Net importers: Based on the sales and production volumes forecasted by Global Insight as of July 2007, Ford will sell about 370,000 vehicles in the CEE region while local production is forecasted close to 170,000 units. Thus, Ford is forecasted to sell about 200,000 vehicles more across the CEE region than are produced locally in the region, which makes Ford a net importer of vehicles in the region. There forecasts might be adjusted sine, at press time, Ford had just announced plans to acquire the former Daewoo plant in Romania and to modernize the plant to reach a capacity of 300,000 units per year. Once these plans materialize, Ford's position, as a net importer, might change considerably. Forecasted numbers for Toyota Motor Corporation (Toyota), as well, is a net importer of vehicles into the CEE region as sales in the region are clearly in excess of local production.

› Balanced sales and production: For a number of brands, namely Lada, GM, and Hyundai, forecasted sales and production volumes suggest a balance between sales across the CEE region and local production. All these brands show a difference between projected sales and production in the CEE region that is less than 20 per



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Factors such as overheating labour markets, and Western Europe's increased competitiveness impose new challenges to companies both considering new investments and to those operating already in the CEE region.

cent of forecasted sales in 2008. We believe it is remarkable that OEMs like GM and Hyundai Motor Corporation (Hyundai) with forecasted sales of about 510,000 and 450,000 units, respectively (across all brands), are expected to produce these vehicles locally in the region.

› Net exporters: For Volkswagen AG (VW), Renault SA (Renault), FIAT group (Fiat), PSA (Peugeot and Citroen), and Suzuki Motor Corporation (Suzuki), the forecasted sales and production figures for the CEE region suggest that these OEMs use the region predominantly as a low-cost production base in close proximity to Western Europe. While Suzuki maintains its one and only European site in Hungary, it seems quite natural that this OEM exports vehicles produced in the CEE region for sale in Western Europe. VW, Renault, FIAT, and PSA all being well-known volume brands in Western Europe have established vehicle manufacturing sites across the CEE region. These sites produce significantly more vehicles in the CEE region than are expected to be sold by these OEM groups there (as of 2008) which make them exporters.

The CEE region has seen a second wave of foreign direct investment (FDI) by international vehicle manufacturers following the enlargement of the European Union (UE) by several CEE countries joining it in 2004. As some of the plants which have been built in the CEE region in 2004 and 2005 are not yet operational or have not yet reached full capacity, production volume across the region is expected to grow further in 2007 and 2008 before leveling off in 2009. Since 2005, when Hyundai decided to put a plant into Nosovice (the Eastern part of Czech Republic close to Ostrava), no further decision by a vehicle manufacturer has been made to build a production plant in the CEE region – except for Russia.

Signs of Overheating

Investment activity by VM and suppliers in the CEE region has stimulated economic growth and improved employment in the manufacturing sectors in most of the countries across the region. Recently some of the smaller economies in the region are showing signs of overheating. Labour markets are tightening in many regions and in automotive clusters in particular. Companies are facing significant problems staffing their newly built manufacturing operations. These companies have to spend significant amounts of money to train new employees, create benefit schemes to retain a skilled workforce, and keep up with wage levels that are spiraling-up quickly. Furthermore, incentive schemes are becoming less attractive in many countries, and companies must consider new locations in CEE countries when setting up new manufacturing operations.

The CEE region has seen a second wave of foreign direct investment (FDI) by international vehicle manufacturers following the enlargement of the European Union (UE) by several CEE countries joining it in 2004.

In recent years, Western European countries modernized labour laws to allow for more flexibility. Companies capitalized on the climate within these economies that suffered from relocation of manufacturing jobs from Western into Eastern Europe by bargaining wih workers councils to reduce benefit schemes and/or increase weekly working hours without compensating for these additional hours. By these measures, Western Europe improved its competitive position to the CEE region.

Challenges Require Adjustment to Approach

Taking all of the above into account, times are changing now in the CEE region. "Once-in-a-lifetime" conditions for investment in the manufacturing sector in the CEE region – availability of skilled labour at low-cost, extraordinary incentive packages, and tax privileges offered by CEE countries – are desappearing as economic climates are overheating. Western Europe has trimmed labour laws and improved its competitive position relative tp the CEE region. As such, relocation of manufacturing operations from Western Europe to the CEE region are much more difficult to justify in light of the imbalance of risks associated and the benefits that might be expected with such a move.

Automotive production in the CEE region is anticipated to level off from 2009, except for Russia. Factors such as overheating labour markets, and Western Europe's increased competitiveness impose new challenges to companies both considering new investments and to those operating already in the CEE region. Currently, the business case behind the decision to move an industrial manufacturing plant from an existing site in Western Europe into the CEE region is much more difficult to justify. The feasibility and the excepted payback periods of such projects have become marginal, more risky, and require new models to become attractive. For those operations that have already been moved into the region the new challenges impose risks that management must address to sustain the competitive advantage, prove the projected business case, and deliver expected returns.

Companies facing these new challenges must adjust their approach to be successful. Ernst & Young observes companies building their strategies for projects in the CEE region by:

› Considering new markets
› Choosing new locations
› Localizing production
› Reengineering the supply chain
› Partnering with local players
› Winning new customers to achieve critical mass ■

Continuing Downswing

There is still no relief in sight for the troubled US automobile sector. Coface has downgraded it once more in its North American sector rating for the month of May. This was a reaction by the international supplier of solutions in receivables management to the increasingly fragile financial situation of American motor manufacturers.

TEXT: ERICH HIERONIMUS, DR. DIRK BRÖCKELMANN • COFACE DEUTSCHLAND AG • AUTO.WORLD 2008

In addition to serious mistakes in their model policy in recent years, they are now also suffering from the decline in consumer spending caused by the real estate crisis. The risk of payment defaults is growing continuously. This is turning into a serious problem for suppliers, who are suffering not only from the difficulties of their customers. "The enormous inflationary spiral in raw materials and energy is pushing them into a difficult sandwich position, especially as banks are very restrictive in their credit policy," explained Jochen Böhm, Assistant Section Head Credit Line at Coface Deutschland. The necessary structural change in this sector in North America remains in the balance. The Big Three, General Motors, Chrysler and Ford, have made progress and continued with their consolidation policy started in 2006. But they are nowhere near over the worst, and the situation in the North American market remains difficult. With a C- rating, previously C, this sector in North America achieves by far the worst result, compared with the rest of the global market. Things are no better compared to other sectors in the US itself. Here, too, it occupies the bottom spot, together with the garment industry. Steel and engineering, on the other hand, are still positioned very well in the United States and are rated A and A- respectively. The Coface sector rating comprises, among other factors, the economic situation of the sector in question, the financial position of companies active in this area and their payment behaviour in short-term commitments as registered by Coface. In the ten rating steps, A+ describes the lowest risk and D the highest.

Spreading to other Economies

The economic slowdown in the United States has intensified and is now spreading to other developed economies. However, the global rating of the automotive sector has worsened no further since the previous year and has remained at B- since 2006. This rating applies also to Western Europe, which means that its position is not as bad as in North America. But even here car manufacturers are struggling with considerable difficulties. The strong euro, in particular, is damaging competitiveness. But a regional survey of sector ratings continues to show significant differences. While the automotive sector in the CIS countries was also downgraded to B- late last year, it has now returned to B, due to strong sales figures and growing foreign investment. In the Middle East and North Africa, the sector was downgraded from A to B+. This means that the situation of the automotive sector there corresponds to that in other emerging economies in Central and Eastern Europe, Latin America and Asia. The best rating, A, is still achieved by the Japanese sector, partly because car

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manufacturers in Japan profit from competitive advantages and high demand in the region.

The following developments are reflected in the Coface rating: The world car market will be tight in 2008 with volumes down in North America, Japan, and Western Europe. Demand will remain strong in emerging markets. Most major carmakers in industrialised countries revised their domestic production programmes downward early this year: The more difficult conditions for access to consumer credit and high petrol prices at the pump will induce households to put off car purchases until late 2008 or even to 2009. The three industrialised regions will nonetheless continue to produce the lion's share of world output (56 per cent).

American carmakers will suffer most from the slowdown and are therefore likely to run further operating losses. European and Japanese carmakers – with broader ranges, products consistent with demand, and positive profitability – are better equipped to withstand this cyclical downturn. But the strength of the euro and the yen will hamper sales to dollar zones. That should prompt them to expand their local operations in the regions concerned and rely increasingly on inputs priced in dollars. The margins of all carmakers will be under pressure due to the continued high prices for some raw materials and the investments they will have to make to comply with environmental regulations. In general, only carmakers with a broad product range or those that have established positions in high value-added segments will be able to sustain significant growth. Provided, however, that they are already endowed with infrastructure in emerging regions, the positive dynamic will continue with production growth remaining very high: 12 per cent in Emerging Europe and Russia, 10 per cent in China, 26 per cent in India and 7.5 per cent in Brazil. The rapid development of consumer credit will make it easier for households to meet their vehicle needs. These markets will, however, be the scene of fierce competition in the low-cost segment pitting the major world manufacturers against those from emerging countries, especially China and India. High raw material costs will also squeeze the margins of parts manufacturers especially with their customers keeping the pressure on supplier prices. Carmakers have made it very clear that they intend to rely increasingly on sub-contractors in emerging regions and have not hesitated to transfer to their suppliers the additional costs resulting from research and development investments.

Leverage-Buy-out operations, which gained momentum in parts manufacturing in the first half of last year, could undermine the financial equilibrium of some sector companies. The more limited access to credit in the United States is likely to handicap those still under Chapter 11 protection and those that recently emerged from that status. In addition, the labour disputes buffeting some of those companies have hurt carmakers with production organised for straight-through processing. Through a domino effect the strikes have also undermined production at other parts manufacturers. The concentration process should continue, although at a more moderate pace.

"But in Western Europe, too, the situation for suppliers is presently very fragile", Jochen Böhm says. "There is high demand for liquidity, but access to credit for important investments has become difficult. In addition, car manufacturers in Germany also feel the consequences of belt tightening by consumers. Volume producers are confronted with a shrinking and aging society. Demand is in decline, cars are used for longer periods. Leading manufacturers are passing the cost pressure on to their suppliers."

The Coface expert also points to the fact that there have been a number of insolvencies among German parts manufacturers in recent times. However, those had been companies that had failed to keep pace with developments in the market. "They were drastically under-capitalised and had lost control of their growth. At the same time, their product ranges were too broad in some cases. Other companies, on the other hand, have gilt-edged balance sheets. There has also been a shake-out in the market. The number of insolvencies is decreasing gradually; many companies are doing their homework."

FURTHER DOWNGRADING OF NORTH AMERICA RATING IN MAY 2008

Region	2007	2008
World	B-	B-
North America	C	C
Emerging Europe	B+	B+
Emerging Asia	B+	B+
Latin America	B+	B+
Middle East	A	B+
CIS	B	B

Source: Coface Deutschland

COFACE RATINGS

The sectoral risk rating assesses the average risk of payment default by companies in a given sector in short-term commercial transactions. To establish a sector rating, Coface uses three evaluation criteria: business trends in the sector, average financial position of companies in the sector, amd payment behaviour in short-term transactions, as reported by Coface databases.

There are ten different rating grades ranging from A+ for the lowest risks to D for the highest risks. Ratings, indicators of payment incidents and sectoral risk assessment are available on: www.coface.de

Downgrading of North America rating from C to C-: American car makers sales suffer from the household expenditures slowdown and their financial situation is still very fragile.

More than Bookkeeping

For protection against payment defaults an adequate and functioning receivables management is required. "That is more than simple bookkeeping, this is a question of continuous information gathering and processing. Only those who know their risks can use their chances", says Benoît Claire, Chairman of Coface Deutschland, stressing that beyond information, credit insurance was and remained the most suitable means. Factoring, too, played an ever-more important role. The individual case constellation was the most important factor. Who supplies whom with what? That was the initial question, including in credit examination. ■

Motor of French Car Industry

The region North-Pas-de-Calais has become the motor of the French automotive industry. Every year, more than 1.7 million gearboxes, 1.9 million motors and approximately 30 percent of all cars manufactured in France are produced here. As a result, the region around Lille has become one of France's most important economic region.

TEXT: HANS SEIDENSTÜCKER • AUTO.WORLD 2008

Today, Renault, PSA and – since 2001 – Toyota manufacture cars in Nord Pas-de-Calais. Toyota's decision to locate in Valenciennes was based on the proximity to the company's European headquarters in Brussels, the availability of qualified workers due to the already existing automotive factories as well as the excellent logistics.

Quality Writ Large

In 1970, construction for the Renault factory in Douai began. It laid the foundation for the rapid rise of the region to become one of Europe's automotive powerhouses. Back in the 1970s, the future looked bleak in Nord Pas-de-Calais as the traditional steel, mining and textile industry faced a rapid decline. But things have come a long way since then. Today, Douai with its 5,000 workers is one of Renault's biggest factories worldwide. Here, the compact van Scénic as well as the compact sedan Mégane are produced primarily for export: Only 30 percent of the vehicles remain in France. In contrast, 60 percent are sold in European markets while 10 percent are shipped to customers outside Europe.

In order to remain competitive Renault had to focus more on quality. The decision-makers in Douai are proud of the so-called Renault Production System. In terms of quality, one stands up well to Japanese manufacturers. After all, in 1999 Renault not only acquired 44 percent of Nissan's shares but also some of its know-how. The Renault Production System is based on the experience of the company's Japanese alliance partners and ensures that potential quality problems are identified and remedied early in the production process. Through the standardisation of processes, improved training of workers, increased quality checks and continues incremental improvement of production processes ("kaizen"), Renault has been able to improve its quality level. The production managers proudly report, that according to a study of J.D. Power and Associates, the Scénic has the highest quality level of any car in its segment in France.

Strong Suppliers

Many suppliers followed their OEMs to Nord Pas-de-Calais, among them such well-known companies as Bridgestone and Faurecia. The Bridgestone factory in Béthune manufactures 60 different types of tyres – a process, which requires much precisision. Of the 85 million tyres produced each year in Béthune, 0.5 percent fail to pass quality control.

Not only the manufacturing process but also the design of new tyres poses challenges. "Different cars require different tyre treads. When designing the tyre for the Audi A5 we initially had to confront interferences", explains production manager Bruno Capron. Today, the share of tyres manufactures as original equipment for OEMs reaches only 45 percent. In 2000, the share reached 70 percent, but the end-consumer business seems more attractive to Bridgestone.

Even though Bridgestone has opened several new factories in Central and Eastern Europe in recent years, the future of Béthune seems to be assured for now. "In Europe, we face a lack of production capacity and would need one or two additional factories. Our new facilities are build in Eastern Europe because numerous OEMs have located there", explains Bruno Capron.

At Faurecia it is obvious, that the proximity to the customer is not always the deciding criteria. As a tier 1 supplier it also supplies PSA, located in Sevelnord, but its most important customer is Volkswagen. Since 1969 it produces

cockpit and instrument panels, seats, door lining, front ends bumpers in the Nord Pas-de-Calais region. With its 500 workers in Hénin-Beaumont the company reaches an annual turnover of 100 million EUR.

Broad Product Range

One of the youngest automotive suppliers in Nord Pas-de-Calais is Toyotomi Kiko. The Japanese company located within sight of the Toyota factory in 2006. Toyotomi Kiko manufactures replacement parts for Toyota cars whose production cycle has ended. Approximately 1,000 car body spares such as doors, boot lids and engine bonnets are produced daily. Before the company invested 21 million EUR in its new factory in Onna-

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ing, locations in Turkey and Central and Eastern Europe were also evaluated. The proximity to Toyota's spare parts warehouse in Brussels which significantly reduces logistics costs finally tipped the scales in favour of Nord Pas-de-Calais. Within five years, Toyotomi Kiko hopes to increase the number of its employees from the current 75 to 140.

The family-owned company Durisotti has specialised in the manufacture of special-purpose vehicles. The vehicles on offer range from cars adapted for the use by handicapped people to police cars to customised delivery vans for retailers. One of the bigger contracts is the conversion of 1.200 Renault Master Minibuses for the use of the French gendamerie. These provide space for nine police officers and are lightly armoured. The conversion of each van costs 40,000 to 50,000 EUR. In 2006, Durisotti converted 29,100 vehicles and reached a turnover of 73 million EUR.

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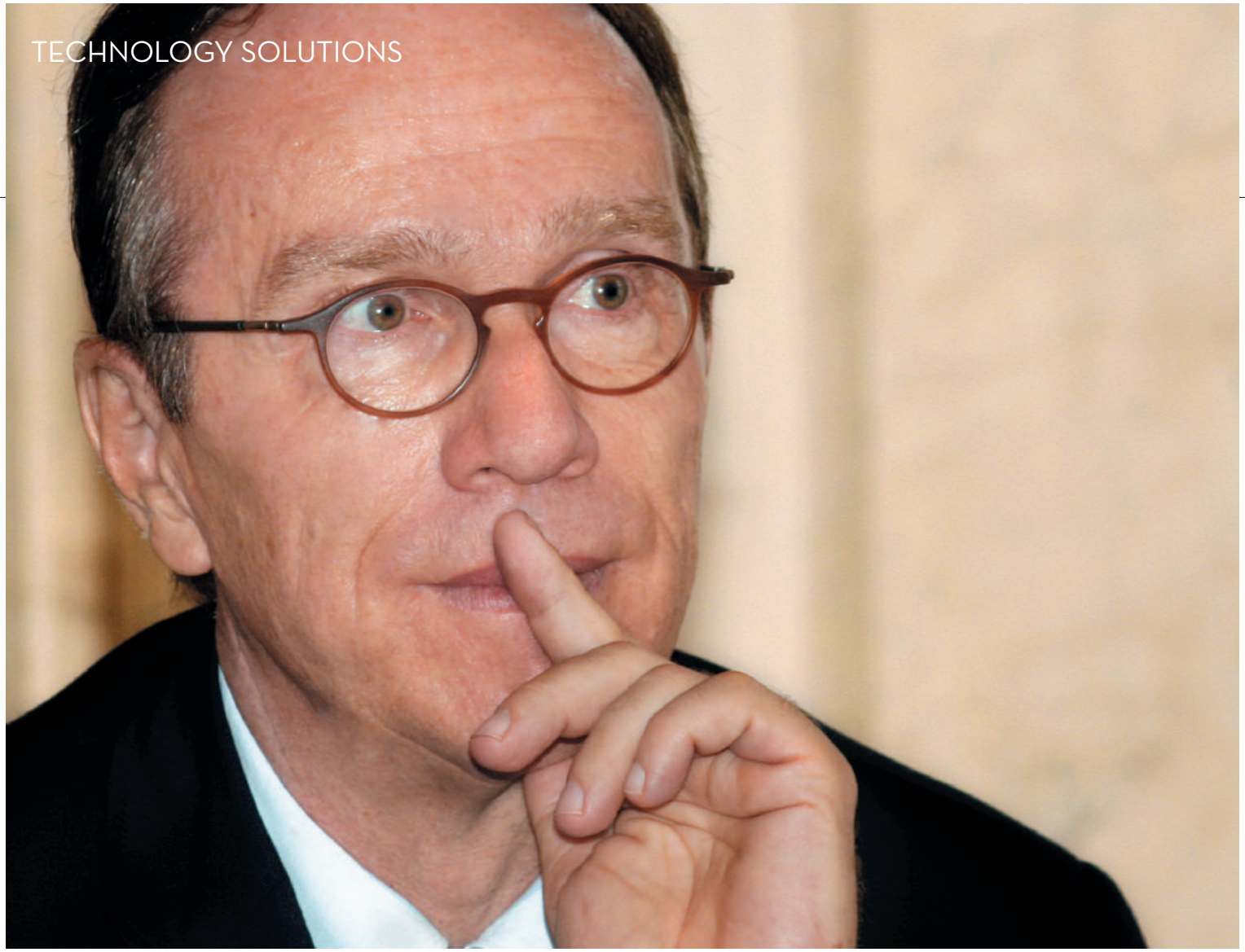
Safeguarding Competiveness

With its seven universities and more than 20 research institutes in the automotive sector alone the region seems well prepared to face the ever increasing global competition. Twelve percent of all French engineers are trained here. With the help of state subsidies, a number of state-of-the-art research institutes sprung up in recent years. One of them is CRITT M2A which opened its doors in 2000 in Bruay La Buissière. The facility is open to all OEMs and suppliers who can use its engine test beds, acoustic testing rooms and echo chambers. Small companies who cannot afford expensive testing equipment benefit from the facility as well as large companies who are able to increase their research capacities. ■



"Low Emission Champions"

Climate protection is one of the top topics in European politics. "There is no doubt about the German automotive industry being a pioneer in this issue", says Matthias Wissmann, President of the Verband der Automobilindustrie e.V. (VDA).

INTERVIEW: HANS GÄNG, PHOTOS: INKA ZIEGENHAGEN • AUTO.WORLD 2008

"We have always pointed out that we do take responsibility when it comes to protecting our climate, and that the reduction of carbon dioxide emissions for new vehicles is a top priority for us."

The European Union has formulated rigorous demands for the reduction of car emissions. You criticized these demands saying that this puts German Original Equipment Manufactures (OEM) at a disadvantage. Why?

Wissmann: At the end of 2007 European Commissioner Dimas presented a proposal on curbing CO_2 emissions. This proposal not only set the ambitious aim of 120g/km CO_2 as a European average, it also included quite excessive fines as well as a very tight time schedule to achieve this.

We have always pointed out that we do take responsibility when it comes to protecting our climate, and that the reduction of carbon dioxide emissions for new vehicles is a top priority for us. However, officials or bureaucrats should not set guidelines on technical issues, they should set limit values.

How to achieve these limits ought to be left to professional creative minds, to engineers and inventors working in companies. We, the German automotive industry, therefore, welcome the agreement reached between Germany and France on restrictions for new vehicles that aim at protecting our climate.

In Straubing the French President Sarkozy and Chancellor Merkel agreed on limiting CO_2 emissions for new vehicles to 120 grammes per kilometre on a European average. Unlike Dimas, Merkel and Sarkozy have, sensibly, pronounced themselves for extended transition periods as well as for taking into consideration Eco Innovations of six to eight g/km on CO_2 emissions. The Franco-German agreement, therefore, means significant progress on our way to a better protection of the climate while taking into account what is technically possible. We are pleased that the two heads of state have taken this step ahead.

What have you been able to achieve in your discussions with the European Commission and how should the European Union now proceed making decisions?

We would like to achieve the 120-gramme-landmark. Yet, as for any law, we need a phase of transition to reach our goal in appropriate and feasible steps. Particularly for the innovative German automotive suppliers it is important to acknowledge all innovations that aim at lowering CO_2 not only for the motor and engine but also for all other innovations. Solar roofs, for example, can contribute to operating the air conditioning which in turn can reduce fuel consumption. That makes it easier to reach the ambitious 120-gramme target. Now it is the turn of the European Parliament and the Council of Europe.

How do you see German car manufacturers compared to European and international competitors in terms of climate protection?

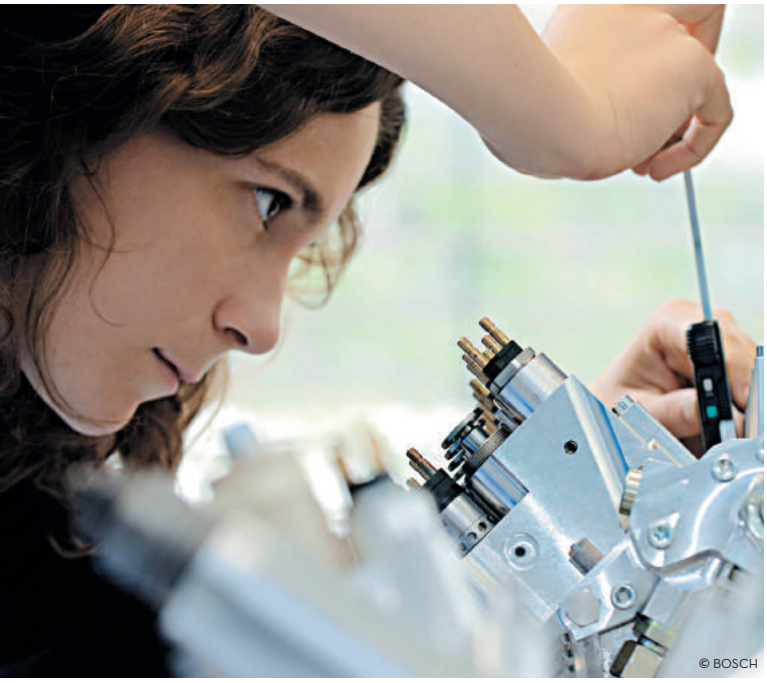
There is no doubt about the German automotive industry being a pioneer in the protection of our climate. Over the first few months of this year alone we have cut carbon emissions of first registrations by 3.5 per cent – in 2007 the rate was already 2 per cent – and this means that we are making considerably more progress than our competitors. Besides, it is German models that are regarded as low carbon emission champions worldwide: the smart fortwo and the Volkswagen Polo Blue Motion. Ford, Opel and BMW, too, have quite a number of models on the market that emit less than 130 g/km CO_2. The innovative power of German manufacturers and suppliers is significant and over the next few months a number of new models are expected to enter the market; there is a lot in the pipeline at the moment.

Beside reducing motor emissions, how important is it to reduce other factors contributing to pollution?

We have always stood up for considering not only the engine and drivechain when looking at how to lower CO_2 emissions. The point is rather to seize all opportunities that present themselves and contribute to protecting our

"Particularly for the innovative German automotive suppliers it is important to acknowledge all innovations that aim at lowering CO_2 not only for the motor and engine but also for all other innovations."

"The innovative power of German manufacturers and suppliers is significant and over the next few months a number of new models are expected to enter the market."



"We have always stood up for considering not only the engine and drivechain when looking at how to lower CO2 emissions. The point is rather to seize all opportunities that present themselves and contribute to protecting our climate."

climate. It is therefore correct to also take into consideration biomass fuel as well as tyres with low rolling resistance, displays showing best times for changing gears and efficient air conditioning; this range of possibilities should be supplemented by Eco Innovations. The point is to realize all options to cut carbon dioxide emissions.

How do you see the contribution German suppliers can make towards the protection of our climate internationally? Do OEMs worldwide need know-how from Germany?

When it comes to the speed at which innovations are taking place, German suppliers are right at the forefront. Suppliers have a major share in the 18 billion EUR that are spent annually on research and development by the German automotive industry. In 2007, Bosch, Schaeffler Group and ZF were among the top ten patentees registering at the German Patent Office, right behind came Behr and Continental Teves. The reduction of exhaust emissions and fuel consumption means additional potential for growth for innovative supplier companies. A modern six-gear automatic drive can, for example, lower fuel consumption by fourteen per cent compared to a conventional five-gear drive.

Variable valve and camshaft timing can also improve efficiency while lowering fuel consumption and emissions - and this does not affect dynamics or fun while driving. By persistently using lightweight constructions, weight can be further reduced compared to conventional constructions, the percentage may even reach figures well above two-digit level using, for example, fibre-reinforced advanced composite materials or downsizing motor construction.

As a rule, lowering a vehicle's weight by 100 kg corresponds to fuel savings equivalent to 0.3l/100 km. Suppliers are therefore unquestionably drivers for innovation.

How are you going to make use of the IAA Commercial Vehicles to emphasize the productivity of the German industry?

We surely will. Months ahead of the opening of the 62nd IAA Commercial Vehicles in Hanover it has already become obvious that the fair, which is the most important event of its kind worldwide, will hit new record marks regarding the number of exhibitors, its international character and the exhibition space that has been booked so far. Up until now over 1,700 exhibitors from 47 countries have registered for this year's IAA. This means that we have already surpassed the historical all-time high of two year's ago when 1,556 exhibitors participated.

The exibition surface covering 265,000 square metres will exceed the record figure reached in 1992. The current situation regarding registrations is most encouraging and puts us in a quite confident mood. Besides, the IAA will take place at a time when the economic situation is quite friendly. Companies' order books are full, export and production are flourishing. We are therefore sure that the 62nd IAA Commercial Vehicles will this year once more be the ideal platform for exhibitors and specialist visitors who want to pave the way for business and sign contracts. You will not find more innovations or presentations of vehicles at any other fair. In addition, the Fair will take an in-depth look at the issues sustainability and efficient transportation. The IAA motto "Commercial Vehicles: On the Move for Everyone" underlines the service character of this key sector that has become indispensable for economic growth at home and abroad. ■

IAA COMMERCIAL VEHICLE 08

62th IAA Commercial Vehicles
23 September – 2 October 2008
Hanover

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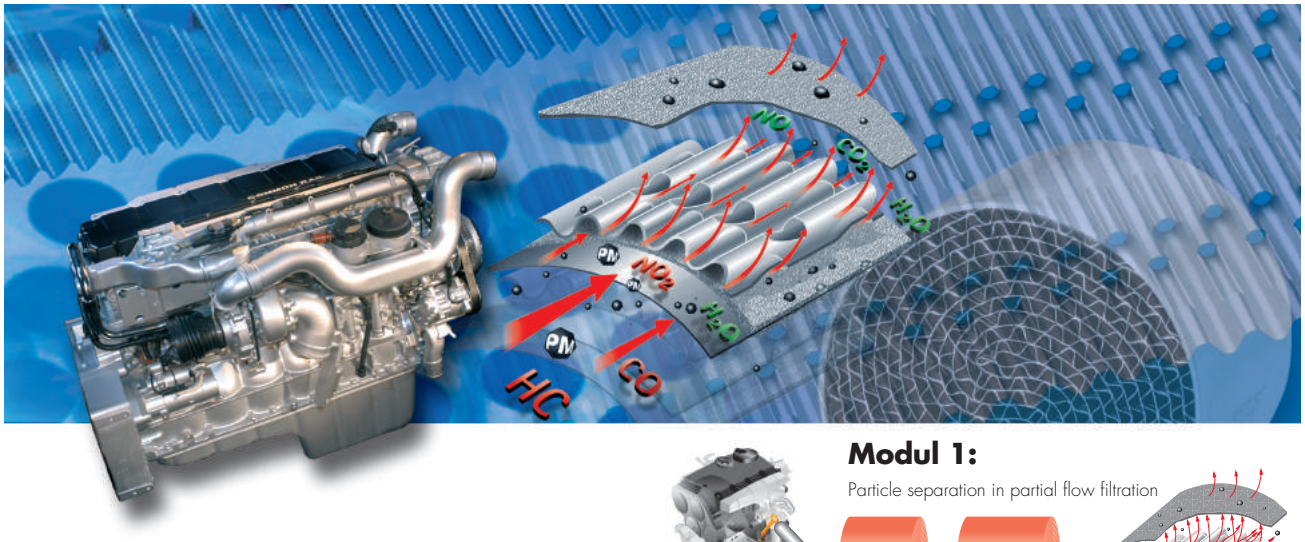
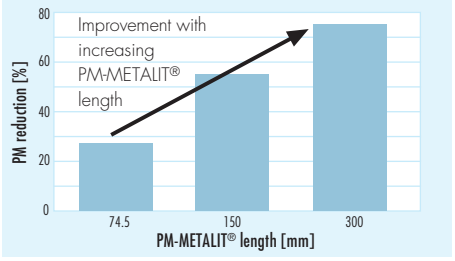


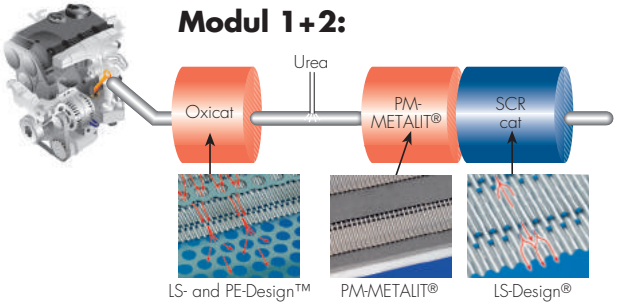
Modul 1:

Particle separation in partial flow filtration

PM-METALIT® enables continuous particulate reduction for series production (e.g. FUSO, Hyundai, MAN) and Retrofit.



Modul 1+2:



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Mastering Challenges

With 329,000 employees worldwide Volkswagen is heading for global leadership in innovation, competitiveness and eco-friendliness. CEO Dr. Martin Winterkorn explains how Volkswagen wants to become“the world’s most fascinating car maker”.

INTERVIEW: DIRK MAXEINER, PHOTOS: VOLKSWAGEN • AUTO.WORLD 2008

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Dr. Winterkorn, it is your stated goal to overtake Toyota as the world's most successful automaker. Have you not bitten off more than you can chew?
I firmly believe that the Volkswagen Group is the most forward-looking company in the automobile sector. In terms of innovative strength, design, precision and quality we are already better than our Japanese competitors. But we're also aiming to top the tables as far as customer satisfaction, sales and returns are concerned. We laid the foundations for doing that last year.

What exactly does that mean?
Well, to start with we're working very hard on making both the Group as a whole and the Volkswagen brand in particular more profitable. A more return-oriented approach, better processes, higher sales performance – these are all measures that are already translating into excellent figures. And we've also launched an as yet unmatched model offensive. The Volkswagen Group will be introducing 20 further models over the next 36 months. On top of that, there will be the successors to existing vehicles, such as the new Golf VI. We are intensifying our activities in segments like SUVs, pick-ups and vans, where we were hardly present in the past. If you look to US automakers, you can see what happens when an automobile manufacturer doesn't make an intensive commitment to developing new models.

New products are one aspect, but where is demand supposed to come from? Your established markets are pretty sluggish, aren't they?
With a differentiated product offering we can set new trends and win market shares in countries such as Germany and the USA. A good example is the Volkswagen Tiguan which immediately catapulted to the top following its market launch, becoming a bestseller in the SUV segment.

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But it's also correct to say that our growth chiefly comes from markets such as China, India, Brazil or Russia. These are markets where the thirst for mobility is enormous. That's why we're developing these markets with very specific measures such as new plants, supplier networks and sales companies.

> "The Volkswagen Group must become the first choice for the talents in our industry."

You're hardly likely to succeed with your traditional vehicle program.
That's correct. It's vital that our vehicles are very carefully tailored to the regional needs of customers. The „global car" is well and truly a thing of the past. If we look at India, for instance, this means we must build small, very inexpensive cars which are nevertheless convincing in terms of quality, customer benefit and environmental compatibility. One example is our New Small Family, which we presented as a study in 2007. We will be building a version of the up! for metropolitan areas in Western countries as well as variants specially designed for emerging markets. That brings us a potential sales volume of 500,000 cars per year in the long term.

What is your response to the criticism levelled by some that Volkswagen has missed the boat as far as CO_2 and environmentally compatible vehicles are concerned?
I would suggest that those critics take a good look at the facts. We launched the very first three-liter cars as early as the late 1990s with the Lupo and the Audi A2. Not only that – the Audi duo introduced in 1997 was the first series production hybrid vehicle in Europe.

Production of all these models has been terminated ...
Environmental innovations have to be accepted by our customers, too. So the price is an important factor.

That's why we're focusing closely on optimizing the Volkswagen TDI and TSI engines or Audi's TFSI technology. Volkswagen's BlueMotion series, Audi's e-models, SEAT's Ecomotive line or Škoda's GreenLine vehicles already cut consumption quite significantly without sacrificing driving pleasure. We're looking towards the future, too: we're making massive investment in second-generation biofuels. And we're working on series maturity for alternative drivetrain technologies such as hybrid engines, fuel cells or plug-in electric systems which are recharged by connecting a plug to a regenerative electric power source.

What about the USA, where Volkswagen used to be a cult?

There isn't much of that left now...
We hit the reset button in the USA last year. We're moving closer to our dealers, closer to our customers. That's the only way we can really play a dominant role as the largest European importer – as THE German automaker – and follow up the successes of the Beetle era and the T2. I believe this also calls for production in the Dollar area. But more important still, it requires the right products. These have to be products which are fine-tuned to the wants of American customers – design, equipment and, of course, price.

Should I be buying V shares now?

Our share price reflects the success of our Group. We were the listed automaker with the best share price development in 2007. We will resolutely continue to press ahead with our profitable growth course. We are investing in our future with great care and deliberation, using sound judgment and deploying our own resources. At the same time, we are keeping a close watch on costs. We have laid the foundation to make the Volkswagen Group a jewel for its shareholders in coming years and to create sustainable value.

That sounds good. But how does it relate to today?

We're already in a position to develop and produce our vehicles much more efficiently today. Our modular component system gives us a completely different grip on development costs, procurement costs and production costs. We can only survive competition if we get all our costs and processes right. And we're working flat out on that throughout the company.

How are you going to inspire your employees to join you?

Our employees play a key role. We need a top team to shape the future. We need people who take pride in their work, who are proud of the vehicles they build. Our most valuable asset is the potential and creativity in the hearts and minds of our workforce. We're already making good progress here. But we need the best designers, engineers, technicians, commercial staff and marketing professionals. The Volkswagen Group must become the first choice for the top talents in our industry. That's why developing young potentials and our reputation as an attractive employer are right at the top of our agenda.

You've set the benchmark for the Group and its brands very high. What makes you so certain you will achieve your goals?

For me, the Volkswagen Group is today the world's most fascinating automobile manufacturer. We cover the entire product spectrum, from the inexpensive compact car through the super sports car to the 40-tonne truck. And, apart from us, who else brings together eight brands under one roof so successfully? Each of these brands is a veritable gem in its own right with a strong independent profile. I don't think we need be afraid of any competitor.

Would you risk making a forecast and telling me where you think the Volkswagen Group will be ten years from now?

This company, its brands, and above all its people have almost inexhaustible potential. Our ideas, our know-how, the synergies we have yet to leverage: all this gives us confidence to master the challenges that lie ahead. Ten years from now we will be the benchmark when it comes to customer satisfaction, attractiveness as an employer, quality, returns, and also our commitment to the environment and society. ■

Niedersachsen

In Deutschland ganz oben ...

Niedersachsen ist Deutschlands zweitgrößtes Bundesland. Im Herzen Europas gelegen, ist es der Standort des größten Automobilwerkes in Europa. Zudem ist es Sitz vieler hochinnovativer Firmen von Zukunftstechnologien und Dienstleistungen.

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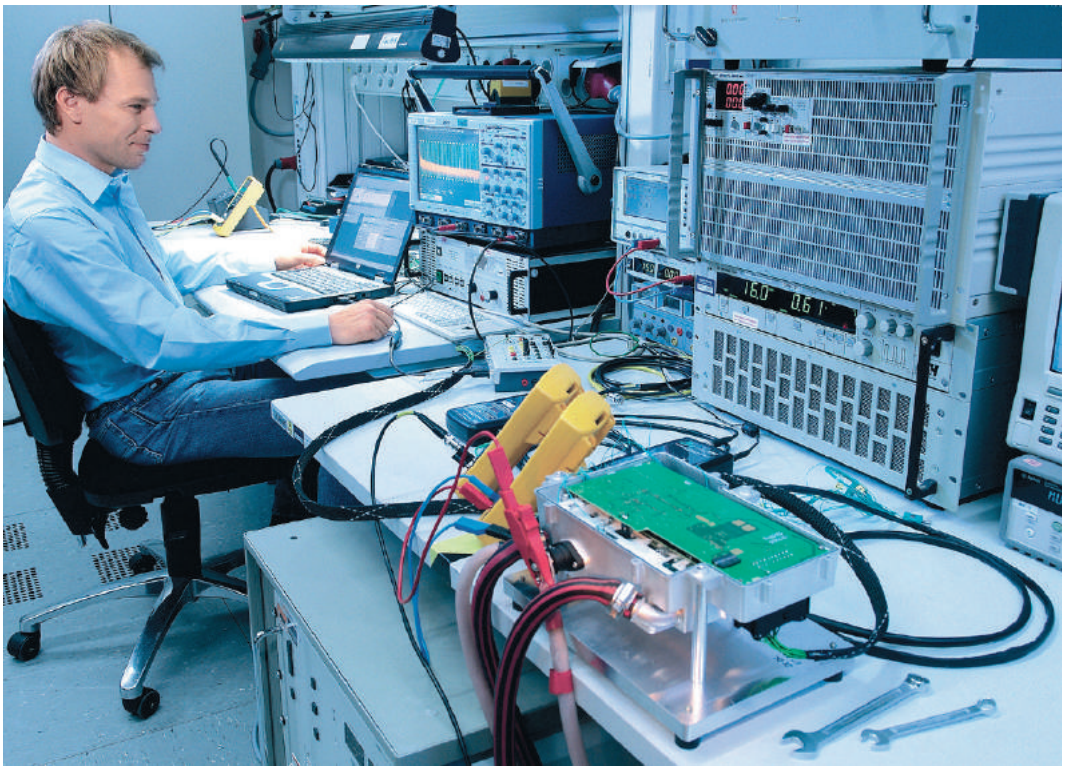
Niedersachsen
In Deutschland ganz oben ...



Hybrid Gains Recognition

Electric cars and vehicles with hybrid drive enjoy remarkable interest among motorists worldwide. Environmental considerations and increasing fuel prices were equally important motivators. According to a survey carried out by Continental a total of 36 percent of those surveyed were willing to buy a car with hybrid drive.

TEXT: HANS GÄNG, PHOTOS: CONTINENTAL AG • AUTO.WORLD 2008

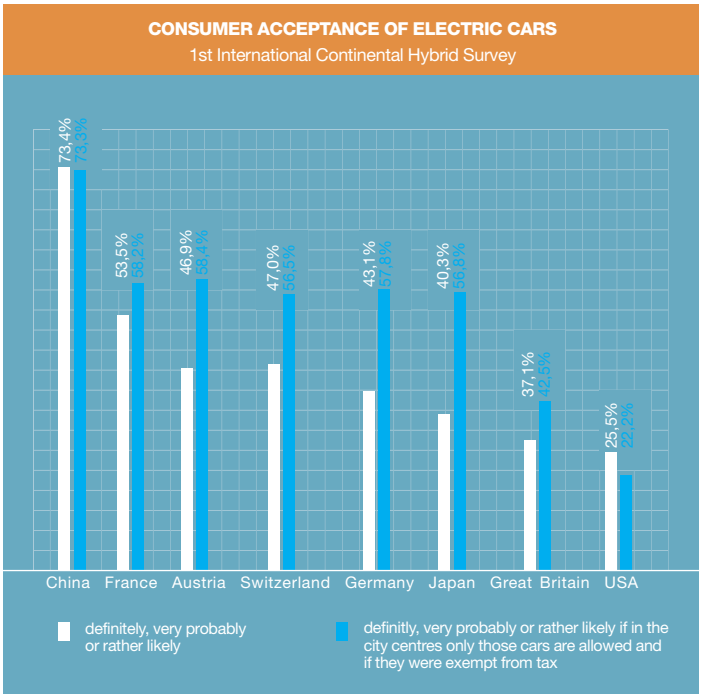
„This trend holds great potential for us as an automotive supplier and provider of environmentally-friendly drive technologies," said Dr. Karl-Thomas Neumann, Executive Board member and Chief Technology Officer of Continental AG. At the beginning of this year, TNS/Infratest surveyed approximately 1,000 motorists each in China, Germany, France, UK, Japan, Austria, Switzerland and the USA on behalf of Continental AG. The study focused on the motorists' current state of knowledge and opinions of hybrid drive systems, their driving styles and their views on battery-powered cars. 45 percent of all motorists reported that increasing fuel prices have forced them to change their driving behavior to lower their fuel consumption. At 62.6 percent, the Japanese have changed their driving behavior the most in response to higher diesel and gasoline prices, followed by Germans at 55.2 percent.

Awareness of Alternative Drive Systems Varies Greatly

The figure among Americans was 42.8 percent. Exception: 60 percent of the British and 48.9 percent of the Chinese do not adjust their driving behavior at all, even when faced with increasing fuel costs. „The vast majority of car drivers across the countries has realized that conventional fuels such as diesel and gasoline will become even more expensive in the future," commented Dr. Neumann on the current developments at the gas pump.

The upward trend in fuel prices is feeding greater interest in alternative drive systems, but the study indicates that awareness of such systems varies greatly around the world. About one in five motorists thinks immediately of hybrid drives, which combine a gasoline and electric engine. This type of drive is best-known among the Japanese at 46.9 percent. The British, however, are not the only ones with the need to catch up: only 3.9 percent are aware of this type of drive, placing them at the bottom in international comparison. Likewise, only 6.6 percent of Americans are familiar with the hybrid drive.

With an average recognition of 16.8 percent, the pure electric drive comes



Source: Continental AG in cooperation with RNS/Infratest, 8,058 interviewees in 8 countries

Hybrid drives present significant savings potential, especially in urban traffic. And it is in urban traffic where the vast majority of motorists can be found each day: 85.7 percent of motorists travel less than 30,000 kilometres a year, more than two thirds primarily in urban traffic.

in second. Austrians and French at 33.3 percent and 31.7 percent, respectively, mentioned this variant even more frequently than the hybrid drive. Further fuel-efficient drive systems are diesel (14.1 percent) and cars powered by natural gas (11.4 percent). One noteworthy observation is that 81.7 percent of the Chinese knew nothing of fuel-efficient drives.

Significant Savings Potential

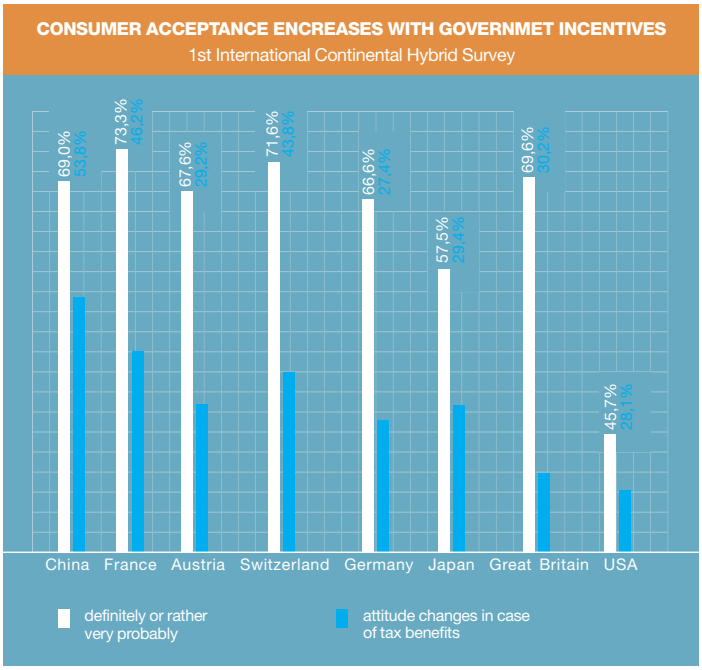
Hybrid drives present significant savings potential, especially in urban traffic. And it is in urban traffic where the vast majority of motorists can be found each day: 85.7 percent of motorists travel less than 30,000 kilometres a year, more than two thirds (69 percent) primarily in urban traffic. „Urban and short-route drivers can reduce their energy consumption by more than 25 percent using hybrid drives, while also reducing CO_2 emissions," stated Dr. Neumann regarding advantages compared to conventional vehicles.

A total of 36 percent of respondents are definitely interested and very likely to purchase a vehicle with hybrid drive. Respondents in high-growth coastal regions of China were even more enthused: After the technology is explained, more than half of Chinese motorists (53.8 percent) can imagine purchasing a hybrid vehicle. Only 27.4 percent of Germans – less than one-third – were prepared to make such a purchase decision.

45 percent of all motorists reported that increasing fuel prices have forced them to change their driving behavior.

Increased Interest in Electric Cars

The study also shows that attractive purchase costs are the strongest argument in favor of hybrid vehicles for 63.5 percent of respondents. 8 of 10 Japanese motorists (82.6 percent) even consider this the most important purchase criterion. When asked about the most interesting type of hybrid drive, motorists cited the lower fuel consumption on hybrid vehicles as the decisive criterion. 37.9 percent would opt for a hybrid with lower fuel consumption and acceleration that is the same or better than conventional engines. More than half of all motorists assume that the purchase of a hybrid vehicle pays off after around three years. „Americans surprised me on this point: 53.9 percent of respondents assume the purchase would pay off after just two years," said Dr. Neumann. The fast pace of development in lithium-ion battery technology is leading to increased interest in electric cars. Almost half of all motorists (45.8 percent) could „definitely," „very likely" or „somewhat likely" envision buying a car designed for urban traffic that runs exclusively on battery power and produces no emissions at all. The positive approach of Chinese motorists was remarkable, though. Three-quarters – 73.4 percent – have a very positive impression of this type of alternative drive, due presumably in part to its potential to reduce increasingly severe air pollution in their cities. ■



Source: Continental AG in cooperation with RNS/Infratest, 8,058 interviewees in 8 countries

"The Environment is our Top Priority"

"Blue Efficiency" is the name of a technology package designed to reduce carbon dioxide emissions in Mercedes-Benz cars. In addition the electric drive is being worked on at full speed. All this is meant to contribute to achieving the more rigorous European CO_2 emission standards. Thomas Weber, Daimler Board member responsible for Research and Development, explained to Joachim Dorfs and Harry Pretzlaff how all this is supposed to work out.

INTERVIEW: JOACHIM DORFS, HARRY PRETZLAFF; PHOTOS: MICHAEL STEINERT • STUTTGARTER ZEITUNG

Recently Germany and France have surprisingly agreed on a common position for the negotiations on more rigorous carbon dioxide emission standards for cars. What consequences will this have for Daimler?

We have said very early that we support the goal of reducing carbon dioxide emissions. It can only benefit the cause if politicians start working on a unification process now. We are very pleased to see that there is a common German-French understanding which gives the other European countries the chance to join in. Now the facts and dates for the introduction of the new emission standards must be determined.

The German-French compromise allows a gradual introduction of the emission standards. Ecologic innovations not directly connected with the engine may also be taken into account. Why is this so important?

It would simply be impossible to introduce these emission standards in one fell swoop as had originally been planned by the EU commission. This is because 60 percent of the cars for sale in 2012 are already completely developed. Therefore we need an alignment of the new emission regulations to the innovation cycles customary in the automotive industry. And this means seven years. The allowance of ecologic innovations is very significant. If the engine was the only target of attempts to improve the climate balance it would mean stopping well short of what is possible. Every gram we can save in the complete vehicle system is a help to the environment. To be in discussions about six to eight grams that can additionally be deducted for ecologic innovations is very important for us. This is a strong incentive for the engineers to explore all options for additional improvements. Those could consist of a roof with solar cells which may already be used in the next generation of the S-Class, energy-efficient headlights or other such things.

Provided the German-French proposal becomes a reality, could you reach the emission standards designated for Mercedes-Benz cars? Or are significant penalties impending?

We are confident that we could reach the value of slightly below 140 grams per kilometre that would be valid for our fleet on the basis of this proposal. It is also clear that some of our cars will be above the value and others significantly below it. This is an extremely ambitious goal but we will initiate a packet of measures to make it happen. In this process we will examine every single model very carefully, nothing will remain unchecked. As technology leaders the German manufacturers will also accept the fact that we are under a lot of pressure which means we have to achieve a higher reduction than our foreign competitors.

How will you go about it?

There is for example a whole packet of measures which we at Mercedes-Benz summarize under the term „Blue Efficiency". In total these measures add up to a lower consumption of up to twelve percent. For example low friction tyres will reduce the rolling resistance and optimised bearings will reduce friction. In addition it is important to improve aerodynamics, for example through smaller outside mirrors, coverings for the underbody or a better air flow-through of the radiator grilles. Another significant starting point is the engine. All of these measures will be realised com-

"The allowance of ecologic innovations is very significant. If the engine was the only target of attempts to improve the climate balance it would mean stopping well short of what is possible. Every gram we can save in the whole vehicle system is a help to the environment."

Daimler Board member Thomas Weber still sees great potential in improving the efficiency of the combustion engine.

© MICHAEL STEINERT/STUTTGARTER ZEITUNG

prehensively and fast; this year alone we will introduce them in 20 models. One year from now the first wave of efficiency improvements will already have been flowed into our car fleet.

During the shareholder's meeting there was an issue about BMW having the better environmental strategy. What is your point of view?

I'm completely relaxed about this point. Overall there was significantly more appreciation than criticism at the shareholder's meeting. Many speakers praised us for the company's development and especially for the good result. We have also been praised for our environmental strategy, for example for the universal introduction of the hybrid propulsion, our clean Diesel engine or for advancements with the fuel cell. The only issue during the discussion was whether we were quick enough in introducing direct gasoline injection which we mass-produced first to our entire product line.

If we rightly remember, another point for criticism was that Munich-based BMW was quicker in introducing a whole bundle of measures to their complete model range while Mercedes-Benz had been focused on having one low-consumption model in each segment.

Our Blue Efficiency package will also be comprehensive as I explained earlier. There is not a big difference in what BMW did. One difference may be though that we verify more pre-

cisely whether the customer really wants a certain option. This is true for example for the Automatic Start/Stop control which we already offered ten years ago but which did not spark much enthusiasm with our customers. We are therefore offering Automatic Start/Stop control as an option for a low premium for the A- and B-Class as well as for the Smart. Whoever wants it can order this technology and save additional fuel. On the other hand I'm convinced that Automatic Start/Stop control will become part of the standard equipment – at least at Mercedes.

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Currently the rising gas prices have a considerable impact on purchasing behaviour. The „New York Times" already intoned a funeral dirge for heavy SUVs this week. Will this market change be permanent? What happens if fuel becomes cheaper again?
We don't think that this is a short-lived phenomenon. This trend is going to continue. Right now we are in a dramatic time of transition. Our product development is taking this into consideration. In the long term we will have to go away from oil and develop zero-emission engines. We just have to be careful in this process to look beyond our nose in Europe. This transition does not take place at the same speed in different parts of the world. The situation in Europe is different from that in China and India just as the Midwest situation is different from that in California. We will need to be given the opportunity to be competitive everywhere in the world, also in this transitional phase.

There are managers in the automotive industry who are already calling the combustion engine a phase-out model. Do you think the same way?
This depends on the period of time. If you ask me as a researcher and look at a period of one hundred years this may be a valid presumption. But I don't think we will live long enough to see the farewell of the combustion engine. This is because there is still a large potential to make it more efficient despite all the advancements in the past.

A development outlook for the combustion engine was the so-called biofuel, fuel that is extracted from, for example, plants instead of oil. Recently the earlier almost euphoric appraisal of biofuel has given way to plain disillusionment.
We have always warned against an overheated discussion about biofuel. I therefore hope that the pendulum is not swinging all the way back with people insisting to say goodbye to biofuel. We must go the entire route to alternative fuels but with a realistic schedule.

But more serious than the problems of foreign cars in Germany was the global debate about a competition between tank and plate. With plants being increasingly used to produce fuels the food prices have gone up so that the poorer people in Mexico can no longer afford their tortillas.
Of course nobody wants this. We have always clearly said that the first generation of biofuels must be entered into with some sense of proportion. The engine technology must be adapted to biofuels and then the capacities need to be built up for the next generation of biofuels which will then open up an entirely new resource potential so that tank and plate will not compete and the production of food will therefore not be narrowed. We are on the right track with Sun Diesel from our cooperation with Choren.

Your work must have changed considerably in recent years. In the past safety and comfort were terribly important; today the entire discussion is focusing on environmental issues. Is eco-efficiency also the all-dominant criterion when a buying decision is made?
You can't look at this just from one side. We regularly ask our customers and do market research. In the last three to four years the interest in environmental issues has risen globally. Most recently it increased dramatically. Today the environment evidently has a strong influence on buying decisions. Still our customers show us that other arguments count as well: safety, comfort, design, emotion. All this has been and still is important. Therefore we do one thing without neglecting the other.

But sometimes this is like squaring the circle. If you want a safer car, for example by installing a night vision system, it is also going to be heavier. More weight in turn means a higher consumption which is negative for the environment. How do you decide today if you have conflicting goals?

Two years ago we sometimes had difficult discussions about this. In the meantime we are behind it. Today environmental issues have absolute priority here. And it doesn't harm us: Whoever covers the span best also has additional market opportunities. Being able to offer a safe, comfortable and attractive looking car which accelerates well and still is economical can win additional customers. In order to use these opportunities we have massively ramped up our investments in research and development. Furthermore we employ hundreds of more engineers who work on these issues and let corresponding solutions flow into the cars.

Can a company that has grown up with the combustion engine simply switch over and develop electric cars, or wouldn't newcomers such as the Californian pioneers Tesla or Fisker have better chances?

There is probably no one with better qualifications than us because we have been working on electric propulsion for a long time. Even in the early nineties we did a large-scale experiment with electric cars on the island of Rügen. You should not forget one thing: The customer does not buy a propulsion system but a complete car. A car is a complex product and not just a designer cover. These Californian pioneers who are currently working on electric vehicles are certainly innovative companies but they lack our comprehensive vehicle manufacturing experience.

But these pioneers do not only present showcars. They are very determined to market their vehicles and to find many buyers for them.

Don't get me wrong. I have no intention of degrading these small companies. We speak with all of them because exchanging experiences is always helpful. But if you ask me: „Who is going to prevail in the market and take these cars into mass-production? The little start-ups or us although we might appear a little more lethargic in public perception?," my answer is clear: We have the better opportunities – and we will make use of them.

Back in the early nineties when car manufacturers experimented with electric cars the impression was that these efforts took place more or less half-heartedly. When there was no success in developing powerful batteries the interest cooled down pretty quickly.

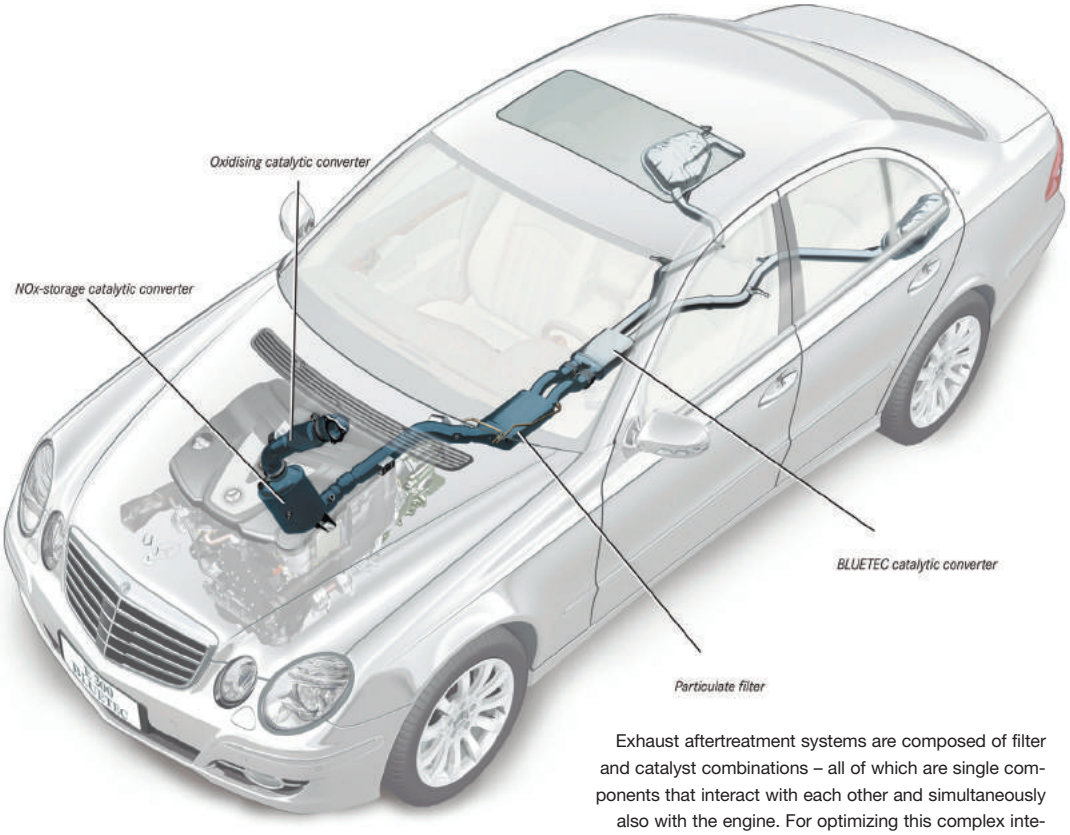
This may have had to do, at least partly, with the structures back then. Previously, for example, we had a team of researchers who had no connection with their colleagues in serial development. They effectively worked on an island. We changed this by closely interweaving research and development. In addition there has been an explicit Board decision to bring an electric car on the market and to do so quickly. This is because zero-emission driving is one of the really big revolutionary topics that we are tackling. And we will have a massive impact in this movement because we want to get there before the surge.

What does this precisely mean?

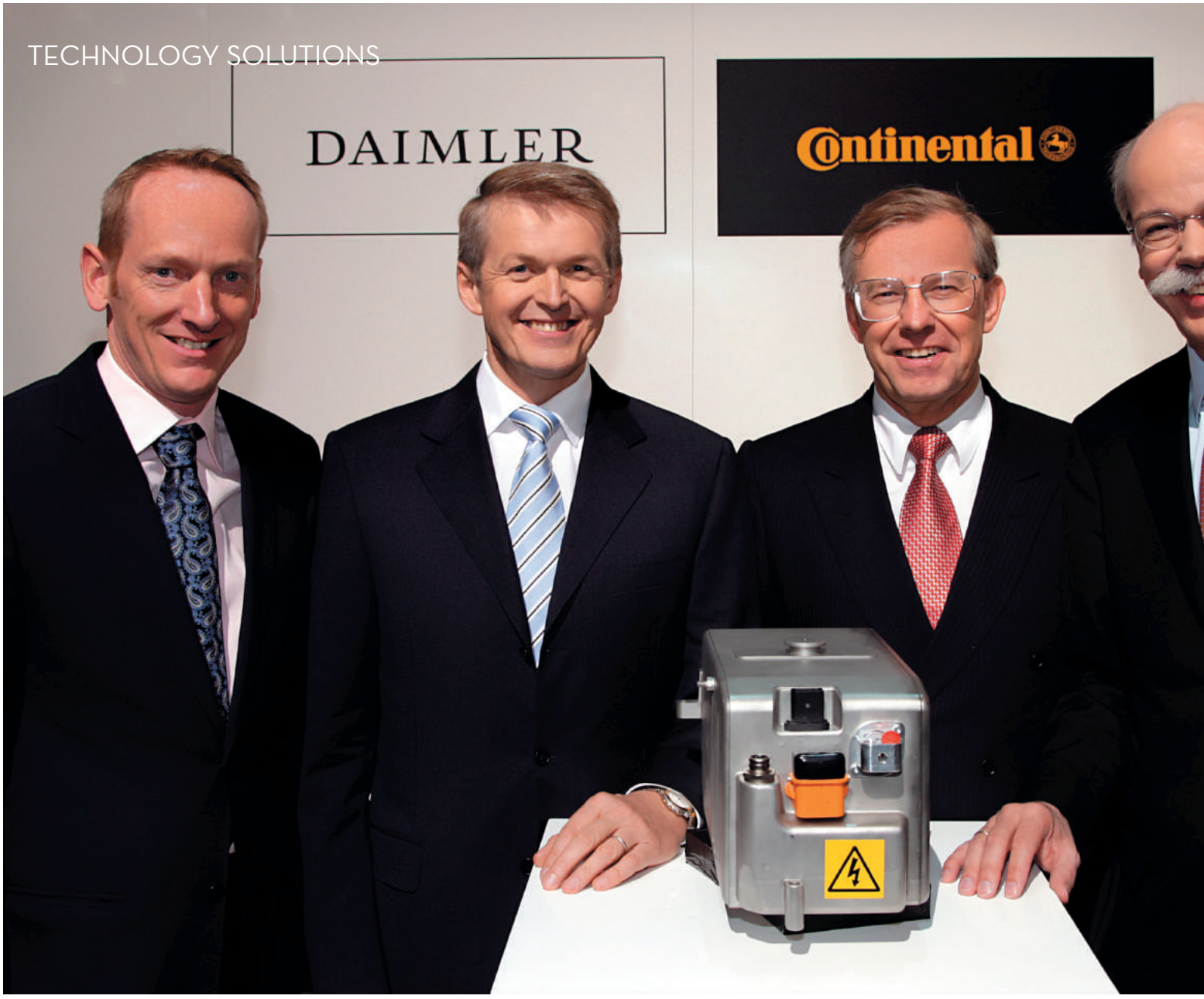
Already next year a standard S-Class model will be available with hybrid propulsion and lithium-ion battery. This announcement has confused a few people, also in Japan, where they subsequently decided to speed up their efforts as well. We are also considering the production of our own batteries so that we can influence this part of the process chain as well along with the development. This is because the one who is good at this is going to determine the future of zero-emission driving. And this is exactly what we are going to do.

But could the breakthrough of the electric car not fail because of a lack of electric energy? Already today some sceptics see a electric energy gap threatening on the horizon. Where should the electric energy for cars come from?

I would very much welcome this discussion starting as early as possible, but on a matter of fact basis. We will do our homework and bring the electric car on the market. And at the same time we will discuss the question of how the infrastructure required for electric cars will be built with our partners from the energy industry. You just can't tell the OEMs to go develop zero-emission cars and afterwards present them as the baddies if additional power plants have to be built. One thing is clear: If we want electric cars we must also answer the question of where the electric energy should come from. ■



Exhaust aftertreatment systems are composed of filter and catalyst combinations – all of which are single components that interact with each other and simultaneously also with the engine. For optimizing this complex integrated system, researchers of the Daimler AG work with sophisticated simulation technology.



Lithio-Ions for Daimler

CO2 and sustainability mark a key in the auto industry. Continental AG, one of the fastest growing automotive suppliers of the world , is an innovative market mover. The multinational will start mass production of Lithium-Ion batteries for hybrid cars worldwide.

TEXT: HANS GÄNG • AUTO.WORLD 2008

The international automotive supplier Continental headquartered in Niedersachsen will launch first-time volume production of a high-performance lithium-ion battery for hybrid vehicles at the end of 2008. It will be used in the Mercedes S 400 BlueHYBRID. „This marks an important breakthrough for Continental as supplier of battery systems. In the next few years we will be launching production of further lithium-ion energy storage devices for mild- and full-hybrid and electric-powered vehicles," says Continental executive board member Dr. Karl-Thomas Neumann. Aside from the lithium-ion battery, Continental also supplies the inverter and the DC/DC converter for the Mercedes S 400 BlueHYBRID.

The inverter controls the flow of energy between the electric motor and the hybrid battery. The DC/DC converter is the link between the hybrid battery

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saving potential, hybrid drive systems are felt to have a future, in particular for city use. Already since the mid-90s Continental has been developing components like power electronics, electric machines and energy storage devices for hybrid drives.
As the world's sole hybrid system supplier not tied to an auto manufacturer, it has, since 2003, been mass producing a mild hybrid. With the hybrid battery pack the company sets new standards in getting eco-friendly hybrid technology onto to the market faster and at a more attractive cost.

Convertig Braking into Electric Energy

In stop-and-go traffic, the hybrid system uses the electric motor like a generator and converts most of the kinetic energy from braking into electric energy, which is fed back into the powertrain when starting and accelerating. The heart of modern hybrid drives is the power electronics, which links the internal combustion engine and the electric motor while increasing efficiency and driving pleasure.
„The power output of the battery determines the overall performance of the vehicle as well as the potential for lower emissions and for possible fuel savings. It thus plays a key role in CO_2 reduction," argues Continental's Powertrain division. Depending on the driving situation, a full hybrid vehicle can cut fuel consumption by up to 25 percent, thus going easy on the environment. „In our opinion, CO_2 and sustainability mark a key trend that will command the attention of the auto industry more than anything else," says Dr. Karl-Thomas Neumann, Continental's Board member responsible for technological development.
Continental Group is one of the top automotive suppliers worldwide. As a supplier of brake systems, powertrain and chassis systems and components, instrumentation, infotainment solutions, vehicle electronics, tires and engineering elastomers, the corporation contributes to enhanced driving safety and global climate protection. Continental is also a competent partner in networked automobile communication. Today the corporation employs approximately 150,000 at nearly 200 locations in 36 countries. ■
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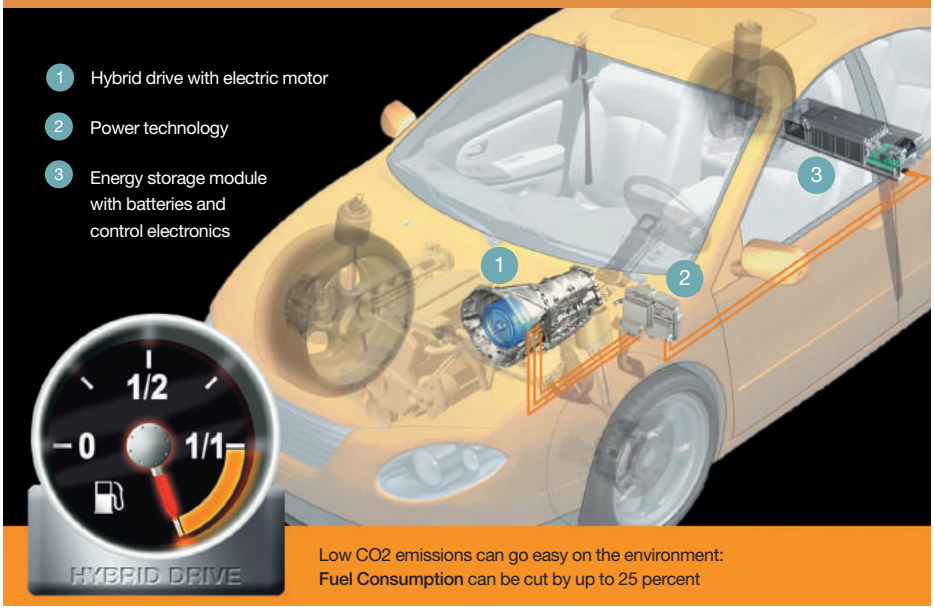
> The additional torque also makes driving twice as much fun. Continental recognized this trend early on and was the first European manufacturer to start supplying a hybrid system for production vehicles in 2003.

HYBRID SYSTEMS HAVE ADDITIONAL TORQUE THAT MAKES DRINGE MORE FUN



Low CO_2 emissions can go easy on the environment: **Fuel Consumption** can be cut by up to 25 percent

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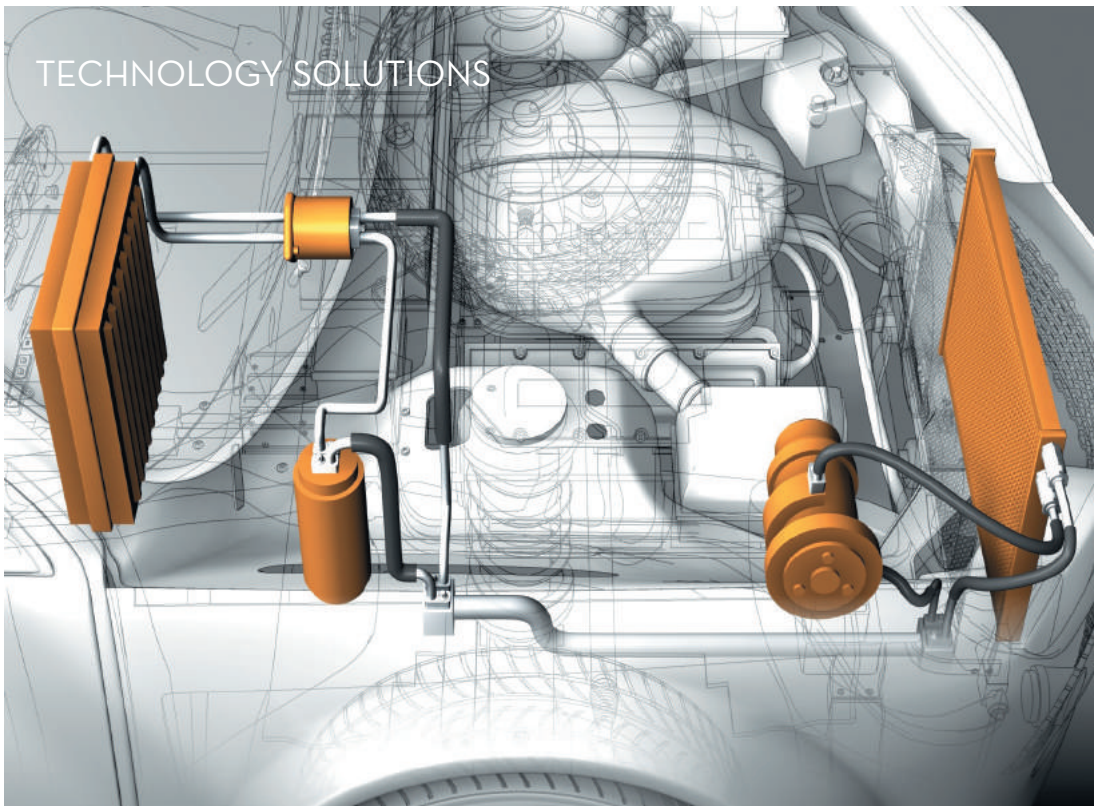
and the vehicle's standard electric system and thus makes possible the elimination of the conventional generator.

Key to Success

Lithium-ion technology is viewed as the key to the success of the hybrid and electric drive systems in motor vehicles. Lithium-ion batteries have a higher energy density, and thus a wider range than those based on conventional nickel metal hybrid technology. The power output of the battery determines the overall performance of the vehicle as well as the potential for lower emissions and for possible fuel savings. In view of their high fuel-



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VOSS connection technology is able to withstand a high level of pressure as a block and as a quick connection.

Components for CO_2

The automotive supplier VOSS offers individual connection solutions for CO_2 air conditioning. The basis for a functioning CO_2 connection is the development of a suitable sealing system, reaching tightness requirements of less than 0.5 g/a.

The R134a coolant will be prohibited in Europe because an EU regulation declares that, starting in 2011, new car air conditioning systems should only be equipped with environmentally friendly refrigerants. CO_2 is a natural coolant which can be directly extracted as a waste product from industrial processes, making it particularly environmentally friendly. CO_2 has a global warming potential that is 1,300 times less than that of the current coolant R134a.

With the same cooling capacity, CO_2 air conditioning systems have a higher level of efficiency than R134a air conditioning systems. As a result, increased fuel consumption and exhaust emissions, caused by running an air conditioning system, can be reduced. For this reason, German automotive manufacturers have agreed to use CO_2 as the coolant of the future.

CO_2 in Air Conditioning Systems

VOSS Automotive is the system partner for line and connection technology in the international automotive industry. VOSS develops appropriate connections for CO_2 air conditioning systems which meet the requirements of CO_2 connection technology. Due to the lower refrigerant mass flow of CO_2, the width of line and connection technologies can be considerably reduced compared to contemporary R134a systems. The required operating pressures of 140 bar and burst pressures up to 340 bar at operating temperatures up to +165°C (for short periods up to +180°C) are securely achieved through optimized connection technology and line cross-sections.

Connection Technology with Elastomeric Sealings

VOSS offers individual solutions for connection technology concerning the CO_2 air conditioning system. The basis of the VOSS connection technology is an elastomeric sealing system – comparable to connections in contemporary R134a air conditioning systems – which resists the high permeability of CO_2. In the case of an abrupt loss of pressure in the air conditioning system the CO_2 enclosed in the sealing ring attempts to escape suddenly and to explosively break the sealing ring. Through special materials and Shore hardnesses, damage by explosive decompression is prevented. The unique geometry of sealing ring and sealing groove causes a substantial increase of the permeation length compared to a standard O-ring. Additionally, the sealing ring rests against the ambient pressure wall face. A permeation rate of 0.5 g/a can be achieved through this layout.

The VOSS block connection 280 BV is based on current connection technologies for R134a air conditioning systems. Through its particular design, burst pressures far in excess of 340 bar are achieved. At 8,500 N, tensile load capacity is clearly over the required 2,500 N. By using radially sealing elastomers, the connection's seal tightness is reached independent of the screw pre-load. This design provides the connection technology with high operational reliability against vibrations and oscillations during operation. By using radial soft seals, the assembly process of the block connection at the assembly line is analogous to contemporary R134a connection technology. Additional training of employees and service garages is not necessary.

The quick connection 280 SV is characterized by a particularly simple, rapid, and secure assembly. In case of misuse, e.g. opening a line that has not been previously ventilated, both connection technologies ventilate before the connection is separated.

VOSS connections with elastomeric seals fulfill the high requirements of CO_2 air conditioning systems and, moreover, distinguish through their performance reliability and ease of assembly. ■

www.voss.de

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- The 2007 CIAPE involves 1,049 exhibitors with 2,450 booths covering 50,000 square meters, 20% from overseas. 45,360 Visitors attend CIAPE 2007 including 6,200 foreign visitors from 97 countries.
- CIAPE is supported by 19 automotive societies covering 10 countries and regions (China, Germany, US, Britain, France, Japan, Korea etc), 8 famous multinational automobile groups (BMW, GM, Toyota etc), world foremost auto parts corporations (Bosch, Denso, Delphi etc), and 21 China whole car manufacturers(FAW, SAIC Motor, Dongfeng Motor etc) in China.
- Along with CIAPE are Summit Forum (400 attendees), International Forum of the Development of Technology (200 attendees), International Forum on Import & Export and Global Purchasing (500 attendees), Chrysler Sourcing Fair (550 attendees), Auto Parts North America Sourcing Fair (350 attendees) and 9 matchmaking seminars.

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Combined NO_x and Particulate Reduction

The road to compliance with the future exhaust gas legislation for HD diesel combines PM filtersystems with nitric oxide reduction with SCR technology. Emitec provides the necessary solutions by using a continuously operating particle reduction system.

The dramatic rise in the cost of diesel over the past year has put great pressure in particular on operators of commercial vehicles. The opening of the Eastern European markets has led to a significant increase in the level of goods traffic on the roads, especially in a transit country like Germany. Over the next few years goods traffic is expected to grow by around another 80 percent. This is going to do a great deal more harm to the environment, particularly near transit motorways, unless engines are fitted with effective exhaust gas after-treatment systems. Therefore regulations are to be expected which take into account the increased environmental pollution. This will force the operators of commercial vehicles and the vehicle manufacturers, to retrofit or to install in new vehicles equivalent emission reduction technique. It would be appreciated very much by all involved parties if supporting measures would be offered to improve the economical situation.

Regardless of high fuel prices diesel engines in commercial vehicles also have to comply with ever stricter emission limits. Exhaust gas after-treatment should not increase fuel consumption under any circumstances, so measures have to be taken to prevent exhaust gas systems from raising back-pressure. Modern SCR systems also have to be maintenance-free, except for refilling with urea solution.

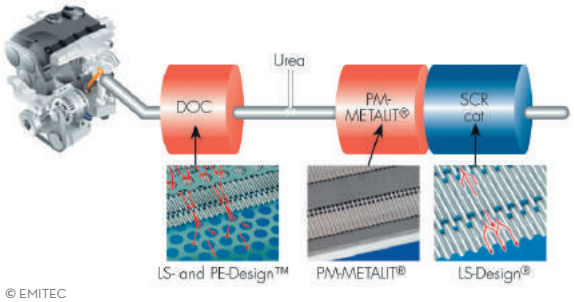
Emitec had already developed new solutions for oxidation catalysts in combination with particulate filters. The necessary equipment was integrated in standard exhaust silencers and required no intervention in the engines or their management systems. Today these systems are used as original equipment and for retrofitting. They are able to reduce particulates significantly without increasing exhaust gas back-pressure.

Nitrogen Oxide Reduction

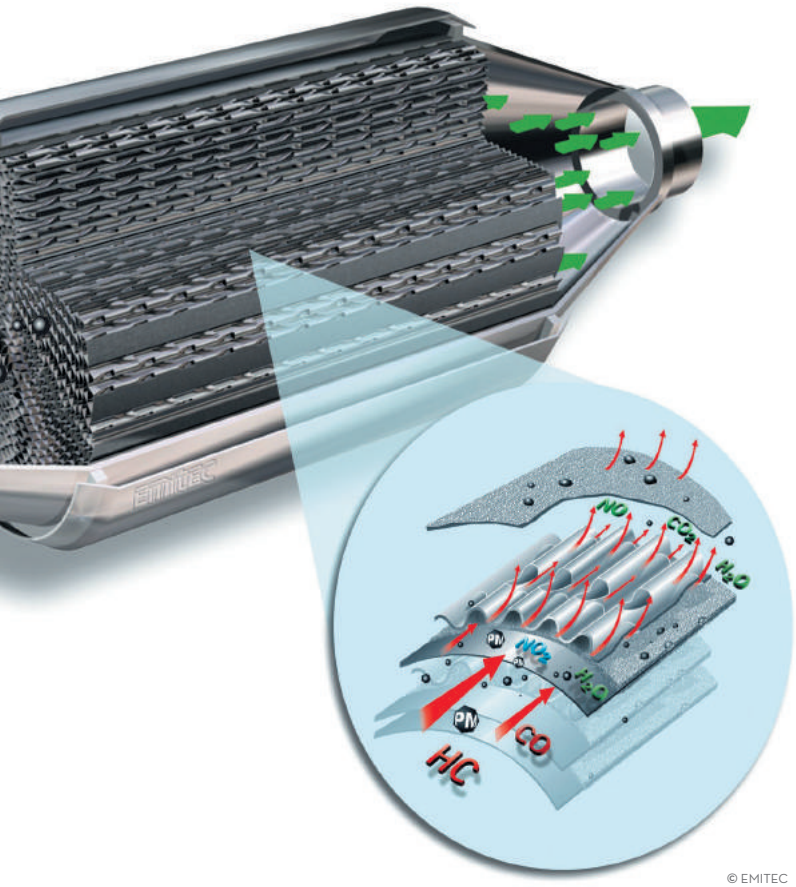
In future it will no longer be possible to comply with nitrogen oxide limits through engine-based methods, such as exhaust gas recirculation and increased injection pressure. From 1 October 2009 the NO_x limit will be reduced from 3.5 g/kWh to 2 g/kWh. Although the new limits could be met with engine-based measures this would result in higher fuel consumption. This led to the introduction of the SCR system (SCR = selective catalytic reduction), which involves an urea solution being injected into the exhaust gas in front of the SCR catalyst. The resulting exhaust gas system consists due to the technical approach of an oxidation catalyst, a particulate filter, mixer, SCR catalyst (if necessary with an ammonia trap) or of combinations of these modules.

The limits of conventional technology and the considerable space requirement often make it almost impossible to accommodate so many separate units. To solve this problem, Emitec developed an extremely compact solution, the SCRi® system – the "i" stands for "integrated". A particulate filter in the form of a PM-METALIT® and an SCR catalyst are housed in a single shell. The urea solution is injected into the exhaust gas stream as usual and fully converted to ammonia, which is required for nitrogen reduction, in the combined PM-MET-

Emitec's vision of "cars that clean the environment" is supported by international environmental legislation. The future requires mobility, sustainability and prosperity backed by environmental protection.



NO_x emissions can be reduced by a process of selective catalytic reduction using urea. The important processing steps involved require special catalysts. Structured substrates offer an optimum solution



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ALIT®, which functions as a mixer and hydrolysis catalyst. Only then does the exhaust gas enter the SCR catalyst, where approximately 80 percent of the nitrogen oxide is converted to neutral nitrogen. If an ammonia trap is required as a final stage it is integrated in the same shell.

The advantages of this system not only include its compact design with relatively modest dimensions – an explanation is given in the next chapter – but also its optimum operation. The PM-METALIT® functions as a mixer and supports the evaporation of the water content in the urea solution. Since the water fully evaporates the SCR catalyst is used solely for the conversion of nitrogen oxide so that its size can be reduced accordingly. This design allows besides the conversion of the NO_X a significant reduction of the particulate emission.

Turbulence as an Important Aid

Emitec is well known for inventing turbulent metal substrates for catalytic converters. When Emitec was founded in 1986 exhaust gas was fed through the smooth, full-length channels of the substrate, like those in ceramic honeycombs, but the company soon developed other foil structures with indentations and openings. In addition, the foils were perforated so that the exhaust gas could also permeate the substrate across the direction of the flow. This made the best possible use of the entire substrate cross-section and the turbulent flow of the gas greatly intensified the catalytic conversion.

These turbulent structures are also applied to Emitec's oxidation catalysts, the PM-METALIT®, mixer and SCR catalyst. As a result, the volume and weight of every component could be greatly reduced. However, two other factors progressively became more important. The first is a reduction in the amount of material required for the catalytic coating (e.g. precious metals for oxidation catalysts) and the second is a reduction in back pressure when compared to laminar structures. The smaller overall installed size makes it possible to integrate the SCR system in a standard exhaust silencer.

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Example of a box-type commercial vehicle silencer containing the major parts of the SCRi®-system, the PM-METALIT® with hydrolysis coating and the reduction catalyst, if necessary with zone-coating against Ammonia-slip.

Lower Fuel Consumption as the Chief Aim

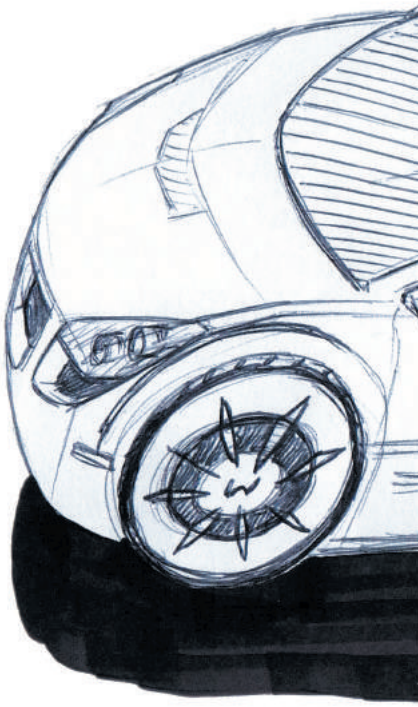
This type of nitrogen oxide reduction technique may seem highly complex because in addition to the SCRi® system it also requires a tank for the urea solution, a pre-heating device to cope with low outside temperatures and a dosing and control unit. However, the system's advantage is that the engine can be run with a relatively high nitrogen oxide content in the raw gas during particularly fuel-efficient cycles. This means that the exhaust gas-aftertreatment does not increase fuel consumption. Thus engines could potentially operate more economically than their predecessors at an even higher injection pressure. A higher nitrogen oxide content in the raw gas also means lower particulate emissions. As a result, particulate reduction becomes less complex because particulate emissions are further reduced in parallel with the nitrogen oxide reduction.

Emitec's SCRi® system solves the conflict of objectives that is putting growing pressure on commercial vehicle operators. The increase in pressure drop and weight caused by complex exhaust gas after-treatment leads to higher fuel consumption, reduces efficiency and drives up transport costs. Emitec has succeeded in developing a ground-breaking solution for environmentally friendly and economic future goods transport. ■

Managing Ideas

By far over 50 per cent of all product innovations end up being flops. In order to minimize risks for innovations, Webasto, global market leader for roof and heating systems, includes its customers in the innovation process as authentic partners in development. Open Source is the keyword. But is it that simple?

TEXT: ALEXANDER LANG, WEBASTO • AUTO.WORLD 2008

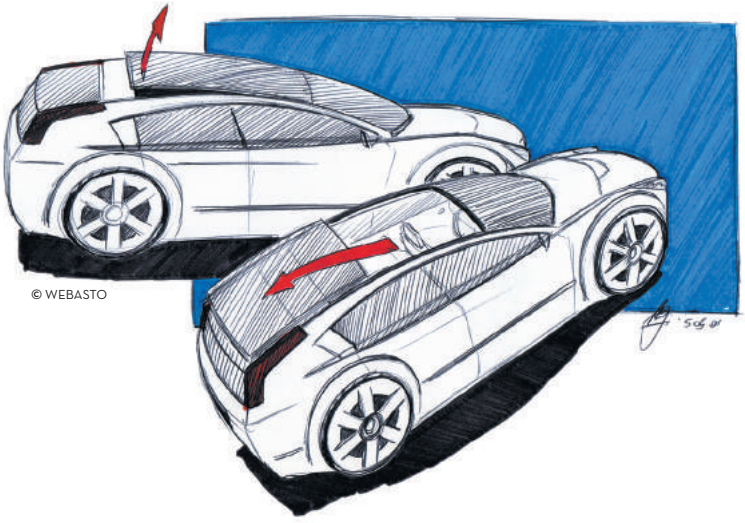


There can't ever be a guarantee for the success of newly developed products. Just like other companies, Webasto supplies items that sell more or less successfully. The roof system that Webasto developed and produced for the convertible smart, for example, was in 2001 part of the best-selling convertible car in Germany. On the other hand, buyers of a Fiat Stilo who could be expected to decide in favour of an A-Class style lamella glass roof do so but rarely. For what reasons?

Contrasting with roof systems for convertible cars, roof and heating systems belong among optional equipment that is chosen separately by the end user. Naturally, optional equipment also has to be paid for extra, hence end users will spend the extra amount only when they are fully convinced of the benefits that the equipment offers. Consequently, customers' needs have to be precisely identified as early as during product development. Bearing this in mind, at Webasto end users plays an important role during product development. Further to co-operation with manufacturers, the company has been conducting independent market research for quite some time. Today, Webasto owns a data base containing information – such as income, marital status, car types owned or preferred leisure activities - on approximately 10,000 end users. All users on record have given their agreement to be included in the database; surveys, therefore, show a response rate of 85 to 95 per cent.

During interviews over the telephone or face-to-face, end users evaluate existing prototypes or product ideas that have been realized already. These classical methods are used by most companies. Webasto takes one step ahead – or rather back – integrating or interacting with customers. In order to modify the features of a product, the company has moved the input of end users from product development back to the innovation process.

> Product concepts born out of end customers' requirements are much less likely to turn into flops than concepts which were worked out by a company's development section only.



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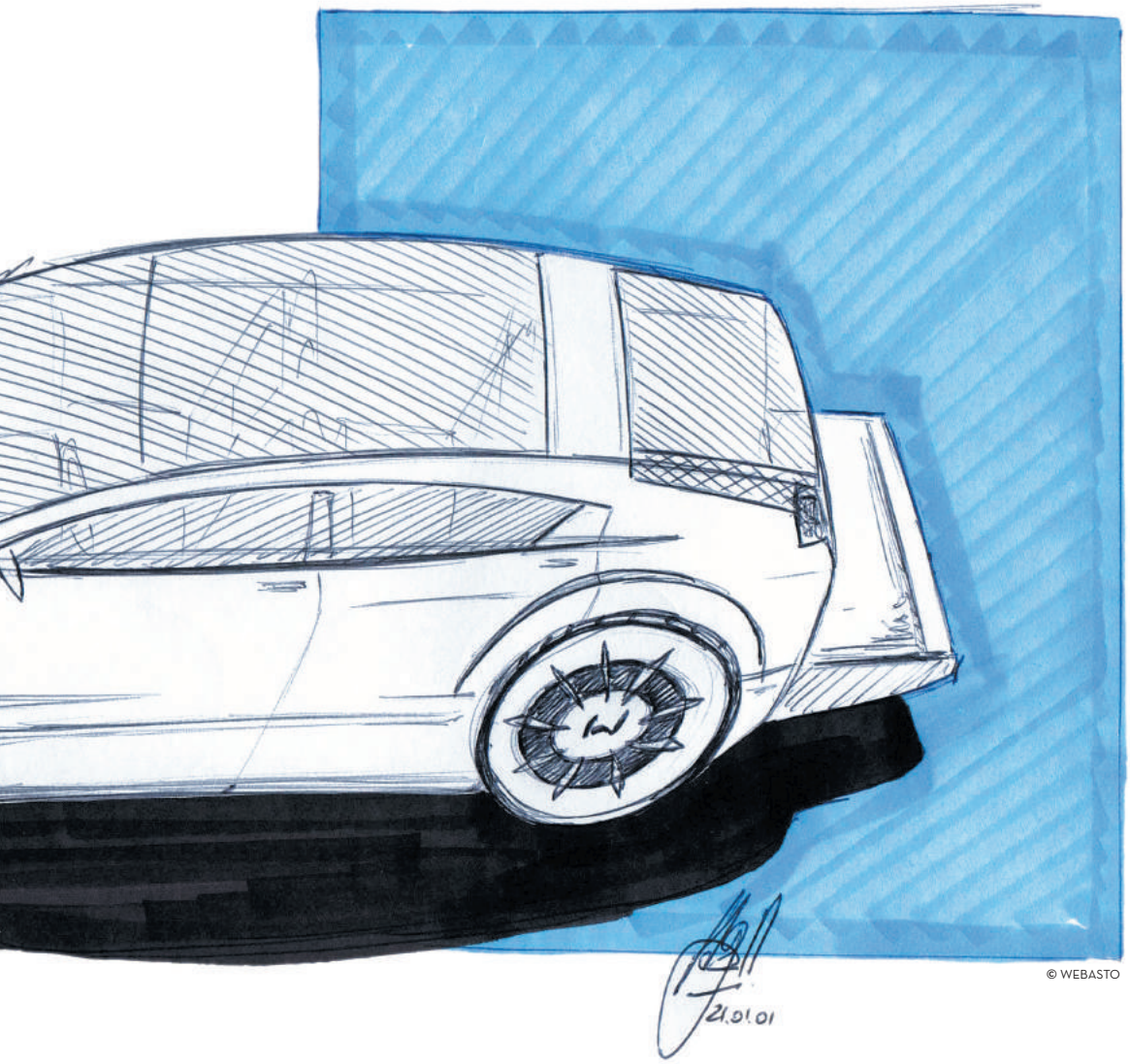
Integrating End Users in Idea Workshops

Webasto's Idea Workshops aim to generate ideas for new products, to prioritize these ideas and, at the end of the workshops, to arrive at three to five product concepts that have been worked on and visualized, all this cooperating with end users. First ideas are generated during brainstorming and brainwriting sessions, these are then structured with the help of mind maps. Small teams take ideas from the pool that has formed, assembling them and turning them into concepts. They then go into details according to given criteria such as barriers for entering markets, customer value, prices at which products are sold to end users, market potential etc.

So-called Lead-User-Workshops have led to the following overall insights on how to be more successful. The workshops should last at least one day but not longer than two days, otherwise participants' motivation is likely to diminish considerably. Groups may be as large as 25 participants. It is easier to control workshops with just about ten people, however, these workshops tend to produce fewer results. A professional workshop leader is extremely important as he or



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she will promote group dynamics and tune into the general mood showing participants the way to specific situations. Often a verbal explanation of the tasks at hand will not be sufficient. The idea is for participants to playfully approach the tasks that have been set for them. Furthermore, it is good to integrate professional designers at a relatively early stage so that ideas may be grasped and visualized quickly and in an uncomplicated manner.

IT-supported Interaction with End Users

Very frequently the ideas generated during Lead-User-Workshops are the seedbed for new product concepts that, following several loops, are turned into marketable concepts by Webasto developers. The support of an IT system is most useful in this process. At Webasto, software is used to record, manage and evaluate the ideas of end users and of Webasto staff. A link on the intranet enables every member of staff to input ideas in the Idea Management Tool without spending much time or effort. When doing so, "inventors" are asked to assign their idea to a group of ideas. Every group has its own jury that makes an initial judgement. Staff members also have access to a search function as well as to the portrayal of the ideas as portfolio analyses, enabling them, for example, to follow up the outcome of their ideas.

An important factor for success in the implementation of the IT system is the Useability of the overall system. For this reason Webasto has decided to develop a system specifically tailored to the company's needs, in co-operation with a partner. In order to motivate staff to input ideas, Webasto Idea Management System (WIMS) furthermore includes an Incentive-Mechanism. In line with the jury's judgement, points are awarded for inputting an idea and for a good ranking of the idea in the portfolio. When registering in the System, staff who have come up with and handed in their ideas can see their current number of points as well as the top points achieved so far. All points can be exchanged in the affiliated Web Shop against prizes (such as plane tickets or gifts). As part of the Innovator Programme there have also been considerations to confer an annual Award for the most successful creative mind.

ALEXANDER LANG

is Director Marketing and Innovation at Webasto, a company of the car industry with a sales volume of around 1,8 Billion EUR in the Munich area in Germany. In his function he is responsible for the Group Marketing, theOEM and the Aftermarket Activities world wide within the Webasto group. He graduated from the Technical University in Munich with a Master of Chemistry.

We do believe that it does make sense to integrate end users in the development process and to listen to what they have to say. Their responses and suggestions represent the foundation for new competitive advantages and for our sales points, these have to be discussed in co-operation with car manufacturers. ■

Economic Integration at Last

As the technology becomes more and more similar, the car of the future will be differentiated from each other by their interiors. The Dräxlmaier Group, an experienced development and system partner in the global car industry, is already working on design studies for the interiors of tomorrow and the day after tomorrow.

Man has always dreamed of being able to predict the future. The visionary Concept Console from Dräxlmaier is not just a mockup, but a distinctly realistic solution, which could theoretically be implemented today. Well thought out in design and engineering, the futuristic part is specifically oriented toward standards of comfort, feel and functionality.

High Quality for Comfort

The entire unit has a warm appearance, emphasized by two different color tones. All coverings are done in fine polished leather. Functional elements such as kneepads, gearshift knob and center armrest, in contrast, are made of fine nubuck leather and make a statement with their extraordinarily soft feel. The continuous dynamic insert with the gearshift and the central operating elements has a galvanized surface. The central operating element provides intuitive controls for various functions such as navigation, telematics and entertainment.

The center armrest forms an independent functional unit that seems to float at the optimum ergonomic height above the base. Beneath its lid – which opens electrically by means of servomotors – an MP3 player or cell phone can be stowed in the multifunctional storage space. Standardized interfaces permit elegant attachment to the entertainment and communication system of the automobile without visible cables. This allows the driver to use the cell phone hands-free during the trip. The two cup holders – also operated electrically – can be either heated or cooled, as needed.

Also extraordinary is the seamless integration of operational and display elements in the disparate material surfaces. These include buttons using modern piezo technology, seamlessly integrated directly into the leather surfaces; this is supplemented by high-resolution TFT (thin film transistor) displays, which are embedded level into the surface and used for the infotainment and multimedia system.

At night, there is a pleasant ambient lighting achieved with the most modern LED and fiber-optic technologies, that emphasizes the shapes of the console and bathes the control areas in an effective light.

Automotive Innovations – Worldwide Presence

The name Dräxlmaier stands for automotive innovations. Whether it is Audi, BMW or Bugatti, Cadillac, or Jaguar, Mercedes-Benz, Porsche or Toyota Lexus: the skills as an independent, reliable system and development partner to the OEM are evident in every vehicle the company contributes to.

As an experienced global partner to the automobile manufacturers recognized as the best in the world, the Dräxlmaier Group has taken a worldwide, long-term and highly flexible leading role. Each day, more than 38,000 employees around the globe work to develop and manufacture modern wiring harness systems and electrical components, exclusive vehicle interiors, and functionally integrated systems (door/cockpit modules) in-house.

Operating at 51 locations in 20 countries, the Dräxlmaier Group worldwide is one of the very few automotive suppliers that has such extensive competencies in the areas of electrical/electronic components, interiors/trim parts and supply chain management. All the necessary competencies, from the concept phase to the design and tool/prototype construction on to series-ready production and a smooth logistics chain have been consistently built-up and further developed internally. ■

Dräxlmaier ConceptConsole: innovative interior design

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Commitment for Innovation

The brand name Karmann is widely associated with the legendary VW Karmann Ghia, but Wilhelm Karmann GmbH has a lot more to offer than just an impressive history. Karmann´s slogan: "Fast Forward" stands for its commitment for innovation.

Karmann started as a small Osnabrueck based factory which built high quality coaches and bicycles from 1874 onwards. Now the Karmann Group has approximately 6,000 employees worldwide. The Karmann Group is headquartered in Osnabrueck as the "Wilhelm Karmann GmbH" and has subsidiaries all over the world: Karmann-Rheine (Rheine), Karmann-Ghia de Portugal (Vendas Novas), Karmann USA (Plymouth, Michigan), Karmann-Ghia de México (Puebla), Karmann Zary & Chorzow in Poland and Karmann Japan (Yokohama).

Since 1949 Karmann has built more than 3,3 Mm. vehicles as a contract manufacturer for OEM. Karmann does not assemble vehicles of its own marque though. This enables Karmann to be independent and it can thus fully concentrate on being a world-class full-service supplier to the automotive industry.

As a full-service-vehicle-supplier Karmann offers a unique portfolio of competencies. Karmann supplies its customers with ideas, new solutions and products which enable them to be more flexible and more responsive to the market and to ultimately provide a wider range of high quality products such as niche vehicles to the end consumer.

Wilhelm Karmann GmbH: In terms of traditional automakers, Karmann's current customer portfolio includes Audi, Chrysler, Daimler, General Motors, Nissan, Renault and Volkswagen. The group has approximately 6,000 employees.

Wide Range of Services

Karmann offers its expertise in a wide range of business areas from design, engineering, production of components, tools and modules, general project management to the manufacture of complete vehicles.

Karmann has a reputation of building outstanding convertibles, but Karmann´s expertise goes well beyond open-top vehicles. The business areas Vehicle Engineering, Production Technology, Roof Systems and Vehicle Production dispose of unrivaled technological know-how, which forms the basis for our complete vehicle expertise.

Karmann also has its own testing facilities and logistics services to complete its service spectrum. All of this goes to show that Karmann is more than just a well-known coach builder. High growth rates in the production of roof systems as well as continued success in the development of vehicles mostly compensate for the current cuts in vehicle production. If we deduct the volume of directed purchasing (for example engines and gearboxes) from the turnover, car production represents only around a quarter of Karmann's turnover.

Karmann´s latest product in the business area of roof systems is the BMW 1 Series. The 1 Series Convertible top was developed and is produced by Karmann. One very handy feature which proves Karmann´s hands-on approach is the fact that the top can be opened up to a speed of 50 kilometers per hour, which means almost anywhere in road traffic.

The electro-hydraulic system can be activated up to 40 kilometers per hour and the whole action takes just 22 seconds. It goes without saying that the soft top has been optimized in terms of acoustics and climate comfort. The soft top can be ordered in black or beige or with a metallic anthracite fabric which gives it a unique look – especially in the sunlight.

Karmann actively contributes a product to the discussion on climate change and brings alternative power trains to the fore. Wilhelm Karmann GmbH and EcoCraft Automotive based in Wunstorf, Hanover have set themselves the goal of being the first company in the world to mass produce and launch a van with electric powertrain called EcoCarrier.

With this vehicle, shipments and deliveries can be made free of smog and particulate matter driving bans become irrelevant. A production of 500 vehicles is scheduled for 2008 at the Osnabrueck location. ■

WILHELM KARMANN GMBH

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Innovation Networks

The expectation is high when it comes to innovative energy and mobility technologies from Germany. "The Federal Republic is the largest market, is significantly growing, and offers with it the best chances in Europe – also for foreign capital", says Michael Pfeiffer, Managing Director, Invest in Germany GmbH.

INTERVIEW: HANS GÄNG • AUTO.WORLD 2008

'Clean Moves': How would you evaluate the expertise in Germany with knowledge of environmentally friendly mobility in international competition?

German automotive companies are exemplary, and this is not surprising. After all Germany is number one in the automotive industry in Europe: 34 percent of all cars on the road in Europe are produced in Germany. The expectation is also therefore quite high when it comes to innovative energy and mobility technologies from Germany. The average CO_2 emission per newly registered vehicle in Germany has fallen from 190 g/km in 1998 to 170 g/km in 2007. Enormous progress has been made over the past years in electric vehicles and energy storage technologies. Over the next two years, the first electric cars from mass production will come onto the market. The consumer is open to alternative engine concepts. A recent survey showed that 30 percent of future car buyers are willing to buy a hybrid model, even if it costs more than a typical car.

What role do Germany's research network and suppliers in the auto industry play in making Germany an attractive investment location?

An enormous one! 42 percent of the R&D centers of European auto manufacturers and tier 0.5 suppliers are found in Germany, and 28 percent of all researchers and developers in Germany are working in the auto industry. The auto industry's expenditures in R&D are more than one third of the total R&D expenditures of all of German industry. The German suppliers industry is also excellently positioned. The largest supplier worldwide is Bosch, and also Continental/VDO and ZF Friedrichshafen belong to the worldwide top 15 suppliers. Shorter production cycles and changing customer demands are leading the auto industry to an ever larger technological complexity. This reality necessitates a tight cooperation between manufacturers and suppliers. Manufacturers are successful if they are able to achieve a coordination of innovation along the supply chain.

How do you clearly explain to foreign investors the chances they have to integrate into clusters and to establish themselves in Germany?

With 5.7 million produced passenger cars, 34 percent of European passenger-car production comes from Germany. In the past year, 310,000 more passenger cars were manufactured than in 2006. When compared to our competitors this is an impressive rise (Spain: increase of 117,000, France: decline of 169,000 over the same time period). 16 new vehicle programs, one quarter of all new vehicle programs in Europe, with a production volume of two million units, are going into production between 2008 and 2012. The German share of new automobile registrations on the European market encompasses 20 per cent. This data all show that Germany is the largest market, is significantly growing, and offers with it the best chances in Europe.

In today's globalized economy is the classic difference between outgoing and incoming business at all relevant?

The question is justified and policy makers have been asking it for some time. The international competition for investment has intensified in recent years. We are seeing this both in Europe and worldwide. It is a consequence of this development that we are further strengthening our activities in investment promotion. Globalization has blurred the difference between classical export promotion and inward investment promotion. All locations are sensing how important foreign capital is, and we in Germany do as well. Both the promotion of export trade and the promotion of inward foreign investment are crucial for the German economy, because both create jobs. We have to work to create business possibilities both here and abroad. And we are on the way to doing this at an institutional level.

How does a federal agency react to these changes? Which tasks will come to Invest in Germany in the future?

We are now in a merger process. At the beginning of 2009 the inbound and outbound activities will be brought together. Currently at the federal level Invest in Germany has the mandate to promote Germany as an investment location. The German Office for Foreign Trade (bfai) is responsible for the promotion of foreign trade. At the beginning of the coming year a new federal agency for foreign trade and investment promotion will emerge from these two organizations. The federal government, and especially the Economics Ministry (BMWi), wants to ensure that an effective network for the promotion of foreign trade and inward investment promotion is built up at the federal level. Here it is required to concentrate the current actors both inside and outside of Germany, to bring together the areas of responsibility, and to achieve an improvement of our service to clients. Improving the support of businesses from one source achieves more transparence and efficiency in the promotion of foreign trade.

"Globalization has blurred the difference between classical export promotion and inward investment promotion", says Michael Pfeiffer.

Foreign businesses meet a diversity of consulting and promoting activities at the sectoral, regional, and federal levels. How do you determine the function and performance of Invest in Germany?

The diversity that we have in Germany has grown historically, and in many areas it makes sense. With Invest in Germany a contact point has been established at the federal level, as a complement to the outstanding work of the federal states. Countries such as Great Britain and France appear internationally with a central organization (e.g. U.K. Trade and Investment and Invest in France). The decisive points are recognition, visibility, and reliability. It is more effective to realize these goals with one organization. Investors need a clear contact point, and Invest in Germany is this at the federal level. We analyze the potential for investors in specific industries that we are focusing on. We look predominantly in the USA, Europe, Japan, as well as in other Asian countries for companies interested in expanding. We speak to these companies with our publications and our press work, at trade fairs and events, or we contact them directly. If the investor confirms an interest, then we assist and advise the investor in a comprehensive manner, from site analysis all the way to the investment decision. ■

MICHAEL PFEIFFER

was born on June 20, 1946 in Sielbeck, Germany. He studied economics at the American University of Beirut and the Rheinische Friedrich-Wilhelms-Universität Bonn from 1966 to 1972. After various executive functions in the Chamber of Commerce in Hamburg, he took over as managing director for International Economic Affairs and Bi-National Chambers abroad at the Association of German Chambers of Industry and Commerce. He has been the managing director of Invest in Germany GmbH since October 1, 2007.

Ulm – Utility Vehicle Region

Aircraft tow tractors for airports, comfortable travel busses, fire fighting vehicles and slope maintenance vehicles, heavy duty trucks, modified body structures, trailers or mobile cranes: Innovation Region Ulm is unique in Germany with this concentration and diversity in the field of utility vehicles.

TEXT: USCHI KNAPP • AUTO.WORLD 2008

The region offers location advantages especially suited to the development of this branch cluster – as demonstrated by the establishment of "Utility Vehicle Cluster Suebia" in 2007. The automotive industry and related branches have a long tradition in Ulm innovation region. Robert Bosch, born 1861 in nearby Albeck, is held to be the inventor of vehicle electrics. In 1893 Karl Kässbohrer laid the foundation for a production site which was known as the largest of its kind in Germany. The first Kässbohrer bus left the factory in 1911. Forty years later Kässbohrer led the way into modern bus concepts introducing the first bus with an integrated engine (SETRA). Today, Setra is part of EvoBus Ltd, a 100 per cent daughter company of Daimler International. Setra is market leader for travel busses in Germany and Western Europe.

Conrad Dietrich Magirus is one more pioneer to mention. He is considered the founding father of modern fire fighting engineering. Even today Iveco Magirus is the only manufacturer of a complete fire fighting vehicle range. High-tech revolving ladders are produced right here at the home site of Iveco Magirus, proving their worth in missions on all five continents. Iveco's flagship "Stralis" rolls of the line in Ulm as well.

Several other well-known companies have chosen Ulm Innovation Region as well: for instance Kamag Transportation Engineering GmbH & Co. KG featuring specialized heavy transport vehicles such as aircraft tow tractors and Liebherr Ehingen GmbH, European market leader for mobile cranes. The region is also a significant site for companies in the areas of automotive related service and supply. A few examples are Victor Reinz Group, world leader for flat gaskets or Bosch Rexroth, leading in development, manufacture and distribution of axial pistons for hydrostatic hydraulic drives. In addition the Ulm Innovation Region as an outstanding research and development location with an excellent education infrastructure (Ulm University, Ulm and Neu-Ulm Polytechnic Universities, Heidenheim Academy) generates a high potential of highly qualified graduates as well as further business oriented expansion opportunities. Ideally situated at the junction of federal Highways A7/A8 and an impressive selection of industrial areas and estates at reasonable rates – Ulm Innovation Region is an interesting location alternative between the metropolises Stuttgart and Munich. ■

Innovation Region Ulm is unique in Germany with this concentration and diversity in the field of utility vehicles.

Utility Vehicle Cluster Suebia

Utility Vehicle Cluster Suebia (CNS) is a joint initiative of the Chambers of Commerce Ulm and Suebia. The cluster's objective is the continuous improvement of sustained competitive advantages for all participating companies, science facilities and the region. Technically oriented work groups are the cluster's first priority, featuring themes such as acoustics, light construction, production engineering, electronics, adhesive technologies. Equally important: the next generation of qualified personnel/engineers. The experience and know how potential of participating companies generates win-win results for all members of CNS.

Some members of CNS will present at the coming IAA Utility Vehicles in Hanover from September 25th through October 2nd 2008. On September 26th 2008 CNS in cooperation with Commercial Vehicle Cluster Kaiserslautern (CVC) will hold a symposium "Specialization and Standardization – Challenge for Automotive Suppliers and Manufacturers." ■

„The experience and know how potential of participating companies generates win-win results for all members", says **Gottfried Mahn**, Director of the Utility Vehicle Cluster Suebia (CNS).

International Cooperation

The **made-in-germany.com AG** helps automotive industry suppliers in Germany and abroad make international business contacts with its comprehensive range of services.

The increased globalisation of the car manufacturing industry means that companies involved in the supply sector also have to act. Reliance on traditionally occupied markets and long-established supply relationships ceased to be enough to secure a company's future success a long time ago. With OEMs establishing and expanding assembly capacities in other locations in Europe, Asia, Central and South America, South Africa, Turkey and Mexico, all automotive industry suppliers must meet the challenge of ensuring their companies are able to perform internationally. The ways in which this can be achieved are as numerous as the risks and opportunities associated with entering new target markets.

The made-in-germany.com AG in Düsseldorf offers German companies a comprehensive portfolio of services, providing support in making balanced decisions regarding new commitments abroad and paving the way for successful entry into new markets. Support services for export-oriented companies are now offered for more than 50 target markets. According to made-in-germany.com AG Chairman Arno Wied, "the company is now represented by more than 400 advisers on all five continents, making us the best-positioned network to establish international business contacts for German companies". The services on offer range from the gathering of pertinent information on the market situation and competition, to developing initial business contacts, providing tangible support during the market entry phase and setting up subsidiaries and production sites.

Developing the German Market

The made-in-germany.com AG is also a reliable partner for companies based in other countries that wish to open up the German market to their products and services. "With more than 80 million consumers and over three million companies, Germany is still a very attractive market for foreign companies and investors", remarks Arno Wied. made-in-germany.com AG smoothes the way for companies to enter the German market, initiates contact with potential business partners or end customers, develops distribution networks or finds partnership solutions, provides information on interesting locations and possible subsidies, and helps create appropriate marketing strategies. "In addition, our company and product database at www.made-in-germany.com is a cost-effective means of presenting our customers' companies in the international arena." ■

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You have achieved your goal!

CNS Cluster Nutzfahrzeuge Schwaben e.V.

Cluster Nutzfahrzeuge Schwaben (CNS) is a joint initiative of the Chambers of Industry and Commerce (IHKs) in Ulm and Schwaben in Augsburg. The CNS region in Germany has a very high concentration of the commercial vehicles activities.

Global market leading companies, including IVECO Magirus with its fire protection technology, LIEBHERR with mobile cranes, Kässbohrer with ski-slope maintenance equipment, AIRBUS cabin technology, are coming together with many other large, medium and small operations in the commercial vehicles industry. Automotive centres at the regional universities and colleges make up a strong scientific background.

CNS
Cluster Nutzfahrzeuge Schwaben

The top location in Swabia for strong companies

- Good transport connections and excellent infrastructure at motorway junction (A7/A8)
- Container station and freight transport centre
- Commercial space from 23 euros/m²
- High quality commercial properties
- Attractive area with strong companies and research institutions
- Award-winning quality of life

The intelligent location alternative between Stuttgart and Munich.

INNOVATIONSREGION ULM SPITZE IM SÜDEN

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cns.mahn@ulm.ihk.de • www.cns-ulm.com

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VDA | Verband der Automobilindustrie

Directory of the Automotive Industry

This database list is a research tool on VDA member companies, their locations and their product range.

www.vda-herstellernachweis.de/index_en

3M DEUTSCHLAND GMBH
type of process and pre-products; plastics and raw materials; body- and functional elements; engines, engine components and powertrain; instruments and electric; traffic systems
www.3m-automotive.com

A

A.U.E. LINDENBERG GMBH & CO. KG
interior components and operating elements

ABT SPORTSLINE GMBH
body- and functional elements; engines, engine components and powertrain; drive train; instruments and electric; cars and traffic systems
www.abt-sportsline.de

ACKERMANN FAHRZEUGBAU GMBH
cars and traffic systems
www.ackermann-net.com

ACTS GMBH & CO. KG
engineering services; interior components and operating elements
www.acts.de

AFT ATLAS FAHRZEUGTECHNIK GMBH
engineering services

AGRODUR GROSALSKI GMBH & CO.
engineering services; type of process and pre-products; plastics and raw materials; engines, engine components and powertrain
www.agrodur.de

AKKUMULATORENFABRIK MOLL GMBH & CO. KG
instruments and electric
www.moll-batterien.de

ALFMEIER PRÄZISION AG
engineering services; engines, engine components and powertrain; interior components and operating elements
www.alfmeier.de

ALLEVARD FEDERN GMBH
drive train
www.allevard-rejna.com

ALLIGATOR VENTILFABRIK
body- and functional elements; drive train
www.alligator-ventilfabrik.com

ALTENLOH BRINCK & CO.
www.altenloh.com

ANTON RUTHMANN GMBH & CO. KG
www.ruthmann.de

APPARATEBAU KIRCHHEIM-TECK
drive train; instruments and electric
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body- and functional elements; engines, engine components and powertrain
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ATERA GMBH
body- and functional elements
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AUTOLIV B.V. & CO. KG
drive train; instruments and electric; interior components and operating elements
www.autoliv.com

AUTOMOTIVE GROUP INNOMOTIVE SYSTEMS EUROPE GMBH
body- and functional elements; drive train
www.innomotive.com

AUTOSYSTEME GMBH
instruments and electric
www.autosysteme.de

B

B&T EXACT GMBH
drive train
www.but-exact.de

BEHR GMBH & CO. KG
engines, engine components and powertrain
www.behrgroup.com

BENSELER HOLDING
type of process and pre-products
www.benseler.de

BERTRANDT AG
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www.bertrandt.com

BERU AKTIENGESELLSCHAFT
engines, engine components and powertrain; drive train; instruments and electric
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BLECHFORMWERKE BERNSBACH AG
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BOS GMBH & CO. KG
interior components and operating elements
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BOURNS SENSORS GMBH
instruments and electric, geometrical sensors
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BPW BERGISCHE ACHSEN KG
drive train; cars and traffic systems
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IFT INGENIEURGESELLSCHAFT FÜR FAHRZEUGTECHNIK MBH
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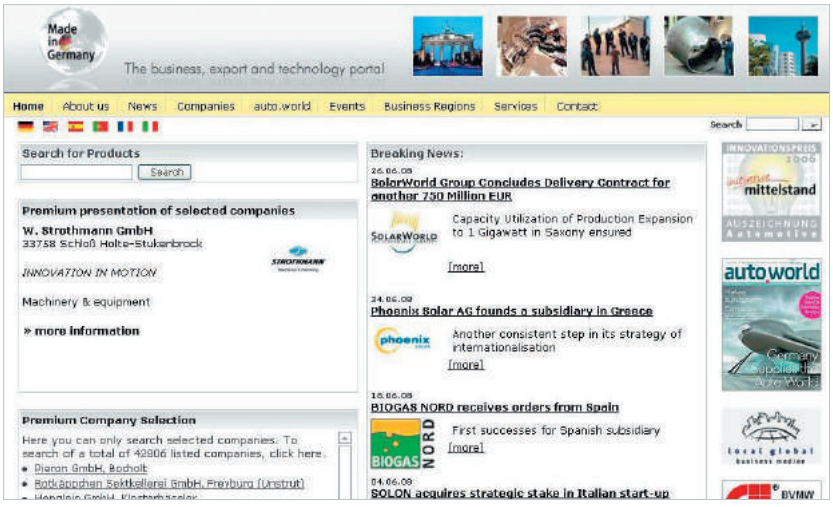

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Upcoming Trade Fairs

The database of the Association of the German Trade Fair Industry (AUMA) contains more than 5,000 profiles of international exhibitions. It supports exhibitors and visitors from Germany. Find detailed information at www.auma.de

AUMA Association of the German Trade Fair Industry

Date	City	Country	Title
10.09.-15.09.2008	Nitra	Slovakia	AUTOSALON NITRA - International Exhibition for Passenger and Commercial Vehicles and Accessories
10.09.-14.09.2008	Joenkoeping	Sweden	ELMIA HUSVAGN & HUSBIL - Scandinavian Caravan Show
13.09.-21.09.2008	Rimini	Italy	MONDO NATURA - Camper, Caravan and Outdoor Vacation Equipment Show
16.09.-21.09.2008	Frankfurt/Main	Germany	Automechanika - The International Leading Trade Fair for the Automotive Industry
20.09.-26.09.2008	Chengdu	China (PR)	CDMS - Chengdu Motor Show - International Exhibition for Automobile and Accessories
25.09.-02.10.2008	Hanover	Germany	IAA Nutzfahrzeuge - Motor Vehicles, Equipment and Systems for the Transport of Goods and Passengers
26.09.-28.09.2008	Porto	Portugal	AUTOCLASSICO - International Classic and Vintage Automobile and Motorcycle Exhibition
27.09.-05.10.2008	Barcelona	Spain	CARAVANING - International Caravaning Show
02.10.-05.10.2008	Kishniev	Moldova	AUTOMARKET - MOTOR SHOW - Automotive Industry Exhibition
02.10.-19.10.2008	Paris	France	Mondial de l'Automobile - International Paris Motor Show
04.10.-07.10.2008	Manama	Bahrain	Bahrain International Motor Show - Powered By Essen Motor Show
04.10.-12.10.2008	Paris	France	Salon des Véhicules de Loisirs - Leisure Vehicles Exhibition
04.10.-07.10.2008	Chicago	USA	The NACS Show (National Association of Convenience Stores)
07.10.-10.10.2008	Kiev	Ukraine	AUTOTECHSERVICE AUTUMN - International Specialized Exhibition for Vehicle Workshop and Service Station Equipment

Matchmaking in South Africa

Everybody is talking about the Republic of South Africa not just because of the Soccer World Cup 2010. For years the country at the Cape of Good Hope has also been one of the most important growth markets in the southern hemisphere.

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This applies in particular to the South African automotive industry, which has achieved high growth rates for some considerable time now and is also gaining increasing importance in the global marketplace. The causes of this lie not only in increasing prosperity and a growing South African middle class, but also in South Africa's traditionally strong economic and commercial ties with South America, Australia and India.

Increasingly these factors are also making South Africa an attractive automotive location for companies from Germany. Volkswagen, BMW, Mercedes-Benz, MAN and many of the major automotive suppliers have already established their own production facilities in the country. Their commitment clearly demonstrates that the overall situation in South Africa can be rated as positive, despite some difficult political and social parameters, and that potential is still a long way from being exhausted.

This situation also provides good business opportunities in southern Africa for other automotive suppliers. Furthermore, given the South African government's policy of "black economic empowerment", all international companies are interested in attracting even more manufacturers and suppliers to make a commitment in South Africa.

The first South African-German Automotive-Suppliers-Forum, which is being organised by made-in-germany.com AG in cooperation with the South African Department of Trade & Industry, provides interested companies good opportunities to make valuable direct contacts. The forum, which involves many major companies in the automotive industry (inclusive Mercedes-Benz and MAN) and South African Automotive Industry Associations, takes place from 25 to 27 August 2008 in Johannesburg and East London. ■

IAA Turkey Day

As a sales market and production location, Turkey plays an increasingly important part in the branch of commercial vehicles. Here, not only the market leaders Mercedes-Benz and MAN produce for the world market and enlarge manufacturing capacities as well as their range of production. In addition to the construction of vans, also Ford has only just recently started the production of heavy goods vehicles in Kocaeli. The indigenous Sabanci Holding wants to build up her bus manufacturer Temsa to an internationally known brand. The importance of Turkey is also being reflected in the outstanding participation of producers and suppliers as exhibitors at the IAA Nutzfahrzeuge, which takes place in Hanover from September 25th to October 2nd 2008. According to the organizer, the German Association of the Automotive Industry (VDA), nearly one hundred enterprises participate in this year's exhibition. The Turkey Day at the IAA Nutzfahrzeuge focuses on the issues research and development. Together with the Turkish supply association TAYSAD, the VDA offers a platform for German and Turkish businesses of the automotive industry in order to learn from each other and to plumb cooperation possibilities. Subsequent to the lectures, cooperation talks in the form of round table meetings will be held. ■

www.vda.de

IAA Russia Day

Worldwide, the Russian automobile industry is one of the most dynamic ones regarding cars as well as commercial vehicles. At the IAA Nutzfahrzeuge which takes place in Hanover from September 25th to October 2nd 2008, a high-ranking delegation of the Russian automotive industry, lead by the presidents of the Russian automobile associations OAR and NAPAK, is expected. The IAA Russia Day, which is organized by the German Association of the Automotive Industry (VDA) and supported by the Committee on Eastern European Economic Relations, takes place on September 26th 2008 and offers information lectures on the perspectives of the Russian commercial vehicle market and the German-Russian cooperation. Subsequent to the lectures, cooperation talks in the form of round table meetings will be held. These talks especially address suppliers of the automobile industry, which are interested in the Russian market or even in a cooperation with a Russian producer or supplier. The cooperation talks will be coordinated beforehand by the VDA. ■

www.vda.de

IAA India Day

India is one of the most important growth markets for the commercial vehicle industry. An enormous market potential as well as an increasingly competitive local industry and development make the subcontinent one of the most attractive automobile markets in the world. The IAA India Day at the IAA Nutzfahrzeuge in Hanover on September 29th 2008 offers information lectures on the perspectives of the Indian commercial vehicle market and on Indian-German projects. At the same time, the exhibition is the platform for the first meeting of the Indo-German Automotive Working Group, which has been set up due to the initiative of the German and the Indian government as well as the German Association of the Automotive Industry (VDA) and its Indian co-associations ACMA and SIAM. The team deepens current issues concerning the cooperation between the German and the Indian automotive industry and discusses common strategies and partnerships. ■

www.vda.de

Supplier Day

The automotive supply industry is a major economic factor in Baden-Württemberg. To strengthen this industry the Ministry of Economic Affairs of Baden-Württemberg has initiated various measures. One important element is the 10th "Automotive Supplier Day Baden-Württemberg", which is organised by the RKW Baden-Württemberg on behalf of the Ministry in Stuttgart on October 16th, 2008. Experts from practice, science and politics discuss the trends in the sector. Automotive suppliers and service providers will have the opportunity to present themselves in an accompanying exhibition. ■

www.rkw-bw.de

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SPRING 2008

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Cars and Goals

The **Brazilian automotive sector** is currently riding on a huge wave of success.

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