THINK ACT

AUTOMOTIVE INSIGHTS

INDIA

The secret of Maruti Suzuki's success

INTERVIEW

Jim Farley, Ford of Europe

SUPPLIERS

The new rationale of tech deals

2|2016 BEYOND MAINSTREAM

SERVING THE LAST MILE

The van – Reincarnation of an urban warrior?

Roland Berger

How can vehicle manufacturers leave their mark on the urban delivery business?

All-rounders wanted!

They are supposed to be quiet and emission-free. Reliable. Flexible. Fast, and with low maintenance costs. Genuine all-rounders, essentially. The demands placed on delivery vehicles for the last mile are spiraling – and confronting manufacturers with new challenges.

AT THE SAME TIME, rapid growth in e-commerce and the resultant steep rise in the number of deliveries in urban areas is driving huge business potential. And no OEM is keen to miss out on margins higher than those in the long-haul business.

THE FUTURE GOALS of urban planners must likewise be factored in. The latter want to see livable, green inner cities with little traffic and low emissions. What's more, the deployment of new technologies (such as drones) means that alternatives are now emerging for some aspects of fleet operators' business. Meanwhile, lucrative margins are also arousing the interest of new competitors: Logistics service providers (such as Uber Cargo) are copying the successful models they developed for passenger transport, and giants in adjacent markets (such as Amazon) are converging on the transportation business. Some logistics groups are even building their own vehicles.

WITH SO MANY OPPORTUNITIES and challenges raising the stakes for OEMs, we have made "the last mile" the focus of our cover story for this edition.

We discussed the matter with Jim Farley, president of Ford of Europe, who spells out how changes on the last mile to the customer are affecting his business and what innovations may be possible, particularly in the van segment.

LOOKING AT REGIONS, Mexico is currently moving center stage and experiencing a boom in investment. We examine what gaps in the value chain still need to be closed to ensure that this inflow of money translates into profits. We also take a close look at India. On the subcontinent, we explore the secret of Indian automaker Maruti Suzuki's success: dovetailing the needs of a mass market with Japanese precision to create a sustainable management model.

AUTOMATED DRIVING, M&A activities in the supply industry, and the astonishing development of the Jie Fang trucks produced in China by FAW number among the other topics covered this time around.

Enjoy your read!
Marcus Berret

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Illustrations: Cover: Carlo Giovani, P.3: Ben Kirchner/Heart Agency

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Jim Farley:

"Urban environments play a fundamental role in the future of commercial vehicles"

81.5%

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Carlo Giovani
is an award-winning visual artist from São Paulo, Brazil. He created the illustrations for our cover story using classical paper-folding techniques.
[carlogiovani.com]

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Automotive manufacturing in Mexico: High hopes for premium OEMs but a shortage of supplier resources

Photos: P.4: Claudia Janke, Farooq Khan/Picture-Alliance, Illustration: Carlo Giovani; P.5: Brent Winebrenner/Gettylmages

Feeding Mexico's auto boom

Assembly line in Puebla: Many components need to be imported.

This is the dawning of the new age of prosperity for the car industry in Mexico. The difficulty is that local suppliers will struggle to satisfy OEM demands. How will manufacturers and suppliers make the most of their investments in the local market?

by Stephan Keese and Christian Böhler

Audi has invested EUR 1.3 bn in a plant with a capacity of 150,000 units a year in San José Chiapa, Mexico. BMW just started to build a new plant in San Luis Potosí, in the center of the country, which is due to commence operations in 2019. These are few of the many examples that prove how Mexico is taking off as a location for automotive production. Seven large car manufacturers have announced new investment plans. More than USD 6 bn will flow into the Latin American country over the coming four years. Combined with projects that have already been kicked off, this will add up to USD 17 bn in new investments planned by all regional players. The new plants, spread across various regional hubs, will boost production capacity to 1.17 million vehicles. Auto exports represent about a quarter of Mexico's total exports, with only one in five of the cars the country manufactures staying within its national borders. So the Mexican economy as a whole is expected to benefit from the latest developments.

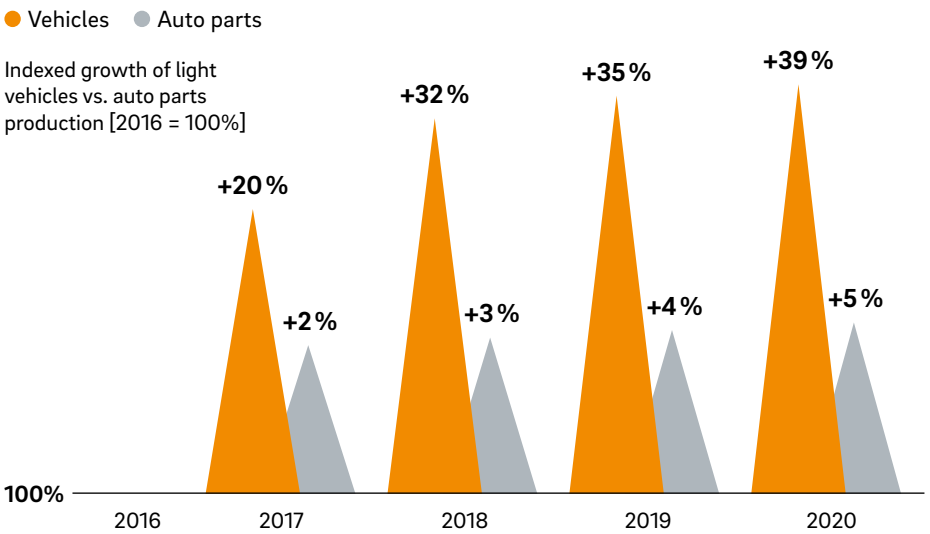
U.S. auto sales did slacken in the first months of 2016, adding to concerns that last year's record sales pace in this key market will not endure. But the recent investment wave is more than a function of sales prospects in traditional markets: While Mexico used to be known as a place where mainly non-premium products and comparably low-in-complexity parts were manufactured, the share of premium vehicle production is expected to grow about threefold by 2020. This is an increase in absolute numbers from 127,000 to 474,000, so premium vehicles would represent 10% of the production mix in 2020 compared to 4% in 2015.

Mexico's exports will no longer be limited to its traditional partners in the NAFTA region – the U.S. and Canada. Though they will still make up the biggest proportion in terms of total volumes, the largest share of the new growth will go to other markets. Exports to the rest of the world will increase this year from 0.5 million units to 1.7 million units by 2020. Sales to the U.S. and Canada will rise 5%, up from 2.3 million units to 2.4 million. Dynamics on the home market will remain relatively stable. Demand will increase by 0.1 million units in the coming four years. Local producers can deliver 80% of the electrical systems

Port of Veracruz: Most vehicles are still exported to the NAFTA markets

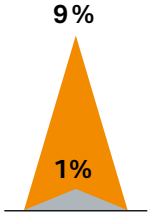
LACKING SUPPLIER SUPPORT

Manufacturers are increasingly relying on imported auto parts. This drives costs and bears risks for friction in the supply chain.



USD 25 bn

gap in the supply chain that has to be compensated by imports in 2020



Compared: Compound annual growth rate over the next five years

Sources: IHS, Roland Berger

Photos: P6: Bloomberg/Getty Images; P7: Keith Dannemiller/Alamy

and 65% of the interiors needed. But this well-established tier 1 supplier base is more than 80% large global companies. Other parts of the car come mainly from abroad. 70% of all body parts have to be imported, as well as 65% of all powertrain parts. Mexico's car manufacturers have always relied heavily on imports – and they will do so to an even greater degree in the future. They have to be aware that translating the boom into profits is anything but a foregone conclusion.

BOTTLENECK PREMIUM SEGMENT

Particularly for the premium segment, there are many issues to be resolved. Take advanced processes for car manufacturing: Over two thirds of the technologies are imported and not suitable for the premium segment. Supplier manufacturing is even less advanced. Suppliers lack high-tech standards and require major financial and technological support. Mexico's manufacturing facilities have a shortage of processing on technologies like aluminum die casting, hot forming, laser cutting and high gloss painted parts. Suitable products for premium production are not available on a large scale in the tier 1 layer. Only a few tier 2/3 players with an international background have a presence in the market so far, because premium car manufacturers never focused on building reliable relationships. Setting up a full-fledged local manufacturing base for parts that meet all the requirements of a high-end digital technology world takes time. In the short term, competition for these resources will increase even more, which drives prices. Additionally, there are structural risks: Prod-

CONSTRAINTS FOR PREMIUM MANUFACTURING IN MEXICO

To secure a reliable value chain and reduce risks, players on the Mexican market have to fill many of the most critical gaps in their supplier network. While the development level is highest for mass-market cars in assembly capabilities, resources for advanced manufacturing processes are not sufficient for premium production.

OEM base	Low	Mid	High	Non premium	Premium
Assembly capabilities				◉	◉
Advanced manufacturing processes				◉	○

Supplier base	Low	Mid	High	Non premium	Premium
Tier 1 presence				◉	◉
Tier 1 product coverage				◉	○
Tier 2/3 presence				○	○
Manufacturing technology				◉	○

High: level is comparable to manufacturing in developed country

◉ Ready for mass-market production ○ Not ready for mass-market production

Source: Roland Berger

Countryside Mexico: Most suppliers are concentrated in the north.

Photo: Joel Rogers/Corbis via GettyImages

uct and process supply base offerings vary regionally, with a high concentration of suppliers in the north and a lack of critical products in some regions. Also, inbound and outbound logistics capacity is too limited to meet the dynamics within the sector. This may result in a logistics bottleneck, hampering just-in-time production. Manufacturers will have to spend more on inventory handling. At least in the short term, manufacturers can hedge these downsides by increasing their share of imported parts. On the financial side, this move causes a currency risk owing to the volatile peso.

HOW TO SUPPORT SUPPLIERS

Setting up an integrated supply chain is critical for making efficient use of production capacity in Mexico. OEMs should keep in mind that labor costs in Mexico are expected to rise long term. It is crucial to identify high-priority parts, where local availability is most limited and import is too expensive in the long run.

Set up a strategy and appropriate processes for how to fill these gaps in your supply chain. Try partnering up with the right suppliers and providing subsequent alignment support. Examples would be technical workshops to facilitate integration and technology transfer, assistance programs for financing for smaller tier 2s, or workshops to integrate quality culture and value systems between partners. From a supplier investment perspective, Mexico is an opportunity to expand local manufacturing footprint beyond the traditional product scope.

Large and truly global suppliers have the financial abilities, technological know-how and manpower to enter or penetrate the Mexican automotive market. Overall, setting up a fully local and well-integrated supply chain will take years and require concerted action from all players, but companies that act now have a real chance of benefitting the most from these interesting growth opportunities.

▶ **Learn more about the topic in our full study:** http://bit.ly/rb_mexico_2016

Srinagar: In Northern India, a driver in a Maruti Suzuki car is performing stunts on a rickety wooden wall.

Photo: Farooq Khan/Picture-Alliance

Moving India

Maruti Suzuki is a local hero. The company succeeded in merging the strengths of two very different cultures in one common identity. Their approach became a role model for India's fast growing automotive market.

by Wilfried Aulbur

India's extremely low vehicle density and promising young demographics make it a structural bull-market case for manufacturers in the medium to long term. Its domestic vehicle market grew at a healthy clip between 2005 and 2012. While the overall market subsequently stagnated at around 2.8 million vehicles, growth resumed in 2015 due to a change in government and improved consumer sentiment. Going forward, the market for passenger cars and light vehicles is forecast to expand to roughly 5.7 million units in 2022. This would firmly place India at the top of the industry in terms of growth (see chart on page 13). Clearly, India is too large a market for any car manufacturer to ignore. Cracking the Indian auto market has however proven extremely challenging, as players have to develop market-adequate vehicles. Pricing pressure mandates deep localization levels both for development and procurement in order to reach demanding price points and to defend profits against transaction risks posed by exchange rate fluctuations. Local production of India-adequate vehicles only makes sense if a significant potential volume can be tapped. Hence, the vehicles of choice are small cars, a sizeable but also extremely competitive slice of the market. Typically, the current volumes in that segment attainable for new entrants are insufficient by themselves to justify the effort. This is why export opportunities need to be tapped in order to improve the overall business case.

INDIAN CHAMPIONS

A number of companies have developed operating models that enable profitable growth in India. Many of these have done exceedingly well. Maruti Suzuki is one of the brands that have established much more than a bridgehead on the subcontinent. For years domestic and foreign rivals have tried to chip away at the market share of local hero Maruti Suzuki, but the Indo-Japanese carmaker remains as dominant as ever. By balancing the right degree of fuel efficiency, engine power, space, styling and interior at competitive prices, it became a role model for India's fast growing automotive market. With a market share that remains close to its historic highs, Maruti Suzuki has defined mobility for Indians since the 1980s. Its relentless pursuit of a "volume up, cost down" strategy has created a virtuous cycle that continues to create sustainable competitive advantages. The automotive manufacturer is poised to profit from the growth in demand for passenger cars like no other company in India. Virtually every second new automobile registered in India is sold by Maruti Suzuki; no major car market anywhere in the world is so singularly controlled by one brand. When its closest rival Hyundai is included, only about a third of the market is left, over which more than a dozen car brands compete. The company's beginning can be

traced back to 1981 when Dr. V. Krishnamurthy founded Maruti Udyog Ltd. to achieve two goals. The first was to develop India's technological and manufacturing know-how in automobiles and the second was to develop an indigenous, small and fuel-efficient car that could adequately provide affordable mobility to India's masses. India at the time already had a trio of leading carmakers, including Hindustan Motors and Premier Automobiles, famous for the Ambassador and Padmini, respectively. All three had operated for decades under India's era of a centrally planned economy symbolized by the License Raj. Since they were not subject to the competitive forces of a free market, the quality of cars running off assembly lines at the time were unsurprisingly poor.

A UNIQUE PARTNERSHIP

Knowing he needed an ally to provide know-how, Krishnamurthy was able to convince Suzuki Motor Corporation to bring to India the quality-obsessed car culture so prevalent in Japan. Unfazed by the challenges that the country had to offer, patriarch Osamu Suzuki set to work inculcating Japanese manufacturing principles such as Kanban and Kaizen at a very early stage. Employees had to take an oath that they would not accept or pass on poor quality parts. Hundreds of Indian workers were sent to Japanese factories to learn first hand how to eliminate inefficiencies while Japanese expats came to India to supervise production processes. This strict regime of quality control cascaded down to the manufacturer's supplier base. To ensure parts met with minimum standards, Maruti Suzuki took a direct equity stake in 18 suppliers. Additionally, Osamu instilled a sense of joint responsibility for the company by introducing things like open offices and a common canteen where a managing director might lunch next to the janitor. In the 1980s, these concepts were revolutionary in India even for private companies, let alone a partially nationalized carmaker like Maruti Suzuki. "From day one we had a very successful blend of Indian and Japanese ways of doing things. We were impressed with the minute detail orientation of the Japanese," said Rahul Bharti, Vice President, Corporate Planning. "Their way of observing customers in detail, identifying their needs and then aligning the whole value chain to deliver this need at an appropriate value was impressive."

PROCESSES REVISITED

Osamu also challenged the entire workforce to identify cost savings to the tune of at least one yen as well as weight improvements of at least one gram under the "1 component, 1 gram, 1 yen" initiative. Constant focus on the most minute details, from resource consumption to recycling steel scrap, created a culture of frugal engineering at all levels of the company that helped Maruti offer more value for consumer purchasing power than all other manufacturers in India. The end product was the Maruti 800, a car that became synonymous with the Indian market. Until it was replaced it was one of the best selling models in the country's history.

Maruti Suzuki at a glance

- Car manufacturer headquartered in New Delhi, India
- Formerly known as Maruti Udyog Limited
- Japan's Suzuki Motor Corporation holds the majority of shares
- Operates two manufacturing plants in Gurgaon and Manesar (Haryana State) near New Delhi, will begin additionally sourcing Baleno hatchbacks from Suzuki's fully-owned Indian plant in Gujarat early next year
- Market share of about 50% of the Indian passenger car market (cars and vehicles), revenue USD 8.4 bn in 2015/2016
- Models: Alto, Swift, Wagon R, Celerio, Dzire, Baleno and Ciaz
- Sold its ten millionth vehicle in India in February 2012

THE BEST OF BOTH WORLDS

What initially began as a cooperation of unequal partners ended up merging the strengths of two very different cultures into one common identity. Maruti Suzuki has a detailed market understanding that is driven by its own insights, cooperation with dealers and the desire to be intellectually honest, i.e., to do a rigorous analysis of one's own performance in the market and that of one's competitors to derive the necessary actions. Maruti understands that in the automotive business, it is the right product, the company's commitment to live up to its promises on service, and total cost of ownership that make all the difference. Focusing on key parameters such as leadership in customer service satisfaction has driven positive word of mouth for the brand and enabled sustained sales success. More remarkable is Maruti's ability to maintain its share throughout the years. Typically, after a market achieves a critical mass, foreign carmakers set up full-scale manufacturing plants and local supply networks to better compete on prices. By then it's usually only a matter of time before a market leader sees its advantage gradually erode as consumers look to differentiate themselves from the crowd. That did not prove to be the case in India, however.

KNOWING THE INDIAN CUSTOMER

One reason is that few have succeeded in so thoroughly driving costs out of their processes, making it nearly impossible to match the cost-driven culture at Maruti. But a low price alone is not the answer. The company also knows Indian car buyers are among the most demanding and expect unbeatable value for their money. Pushing cheap cars would ultimately fail as a strategy. "You have to have an offering at every INR 25,000-30,000 to cover all relevant customer segments in the market," said Bharti. "If we find a gap somewhere, we try to identify a product to fill it with a minimum of 50,000 units that has maximum

communization with other products." Innovation at Maruti doesn't stop there. The company pioneered a growing movement towards "clutchless" or automated manual transmissions (AMT) ever since it first displayed the inexpensive technology in 2014 in a Celerio hatchback. Marrying an intelligent hydraulic actuator with a manual gearbox allows Indian consumers to have the experience of driving automatic at a much lower price. Given the congestion on city streets, demand for AMTs in India is now taking off.

EMBRACING THE DEALERS

Maruti Suzuki also blazed new trails in distribution by pushing into the countryside. The recipe is simple: thousands of local villagers are nominated to be "resident dealer sales executives". Factory visits for villagers form part of an outreach program together with support for rural sporting events and trade fairs. In fiscal 2008, rural sales amounted to just 3.5% of Maruti Suzuki's total turnover. Seven years later that share had risen tenfold, prompting other brands like Toyota and Honda to copy its approach.

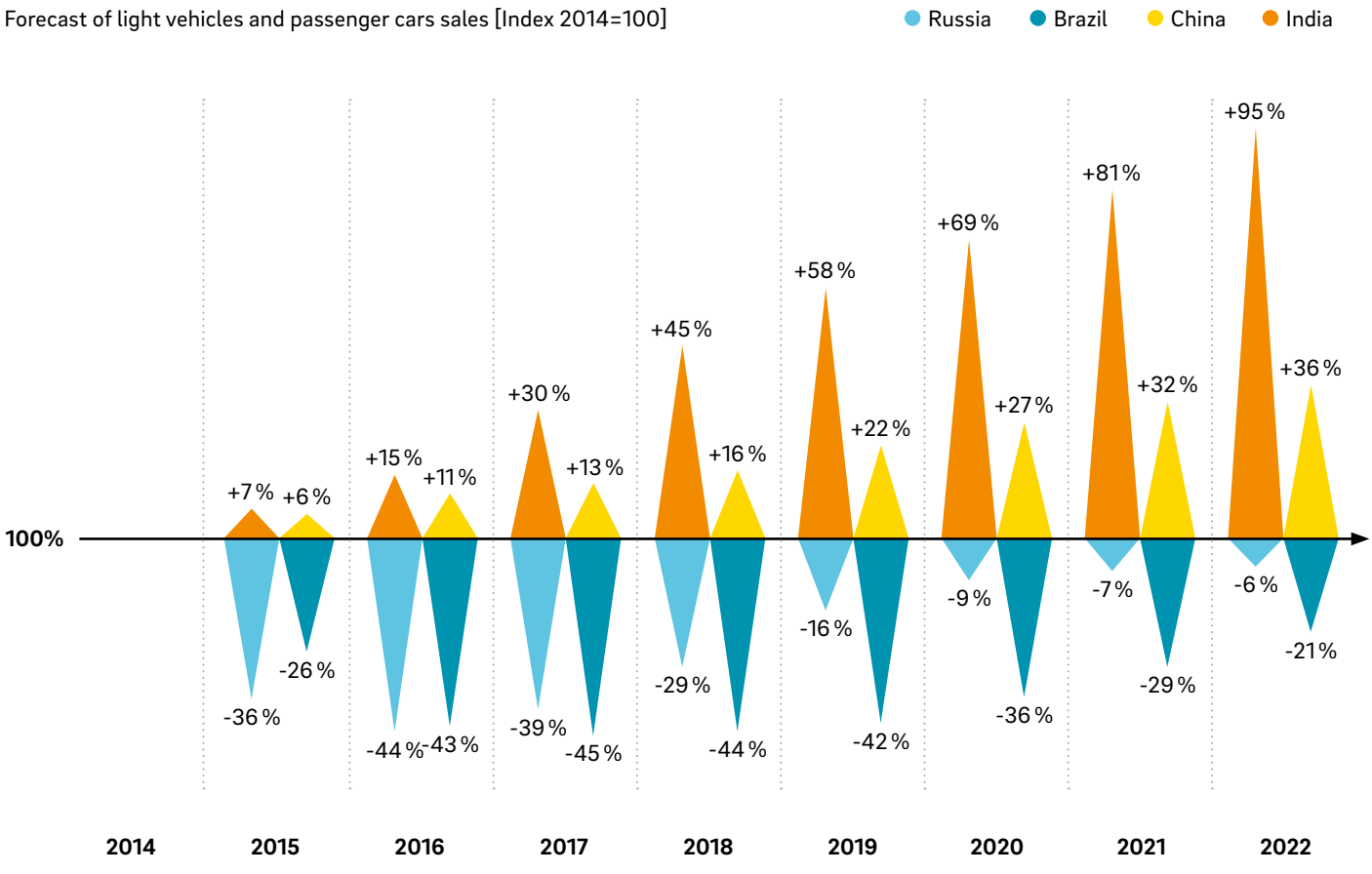
Today the company builds 1.5 million cars annually. Thanks to the favorable development of Maruti's stock compared to Suziki's, the subsidiary enjoys a materially higher market capitalization than the parent, Suzuki Motor in mid-2016. Both sides, however, are undoubtedly happy about the performance of the Indian business. Maruti accounted for a third of Suzuki's automotive revenue and more than half of its operating profit in fiscal 2015. With new models like the Ciaz and Xcross and a premium showroom concept to boot, Maruti is trying to shift its model portfolio upmarket. The transition from a value to a lifestyle-oriented brand has been difficult for Suzuki globally. Thanks to Maruti, India may just be the market in which it succeeds.

▶ **Excerpt from the book:** Riding the Tiger, Random House India, appears 11/2016

INDIA'S CAR MARKET IS THE GROWTH STAR OF THE BRIC COUNTRIES

Thanks to a rapid economic expansion under reformist Prime Minister Narendra Modi, India replaced Brazil 2015 as the 5th largest light vehicle market in the world. In total India sold 3.4 million passenger cars and light trucks in 2016.

Forecast of light vehicles and passenger cars sales [Index 2014=100]

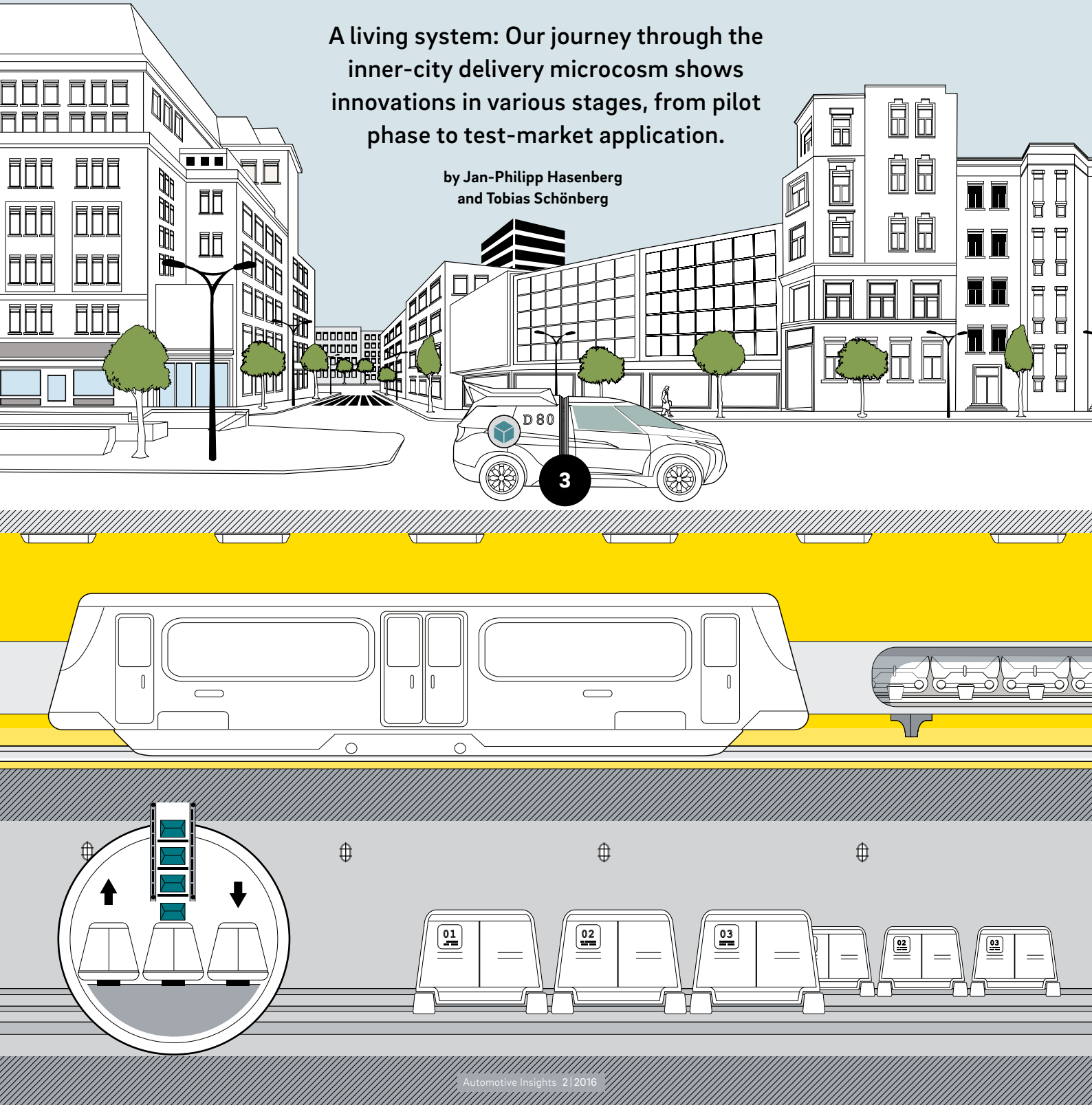


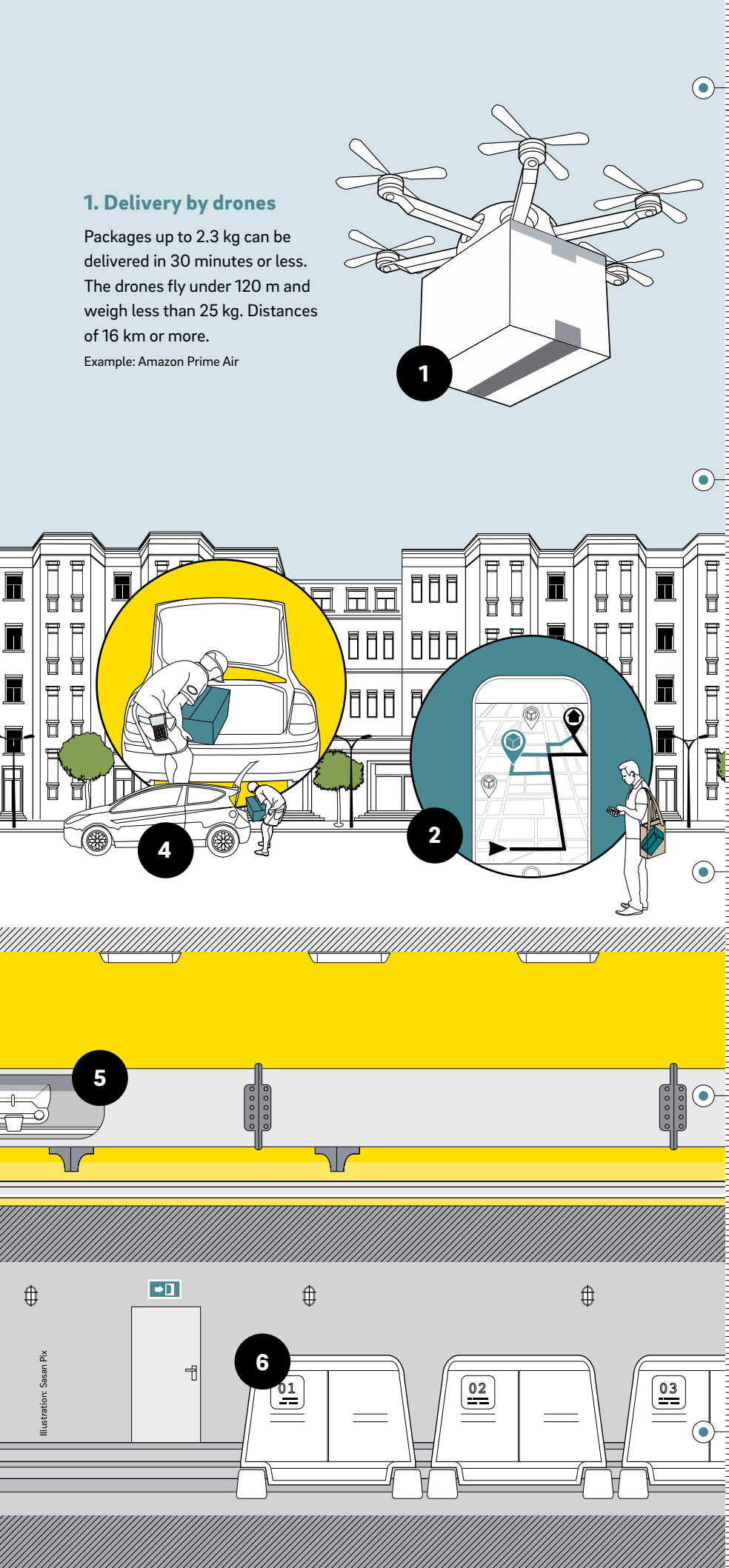
Sources: IHS, Roland Berger

NEW PLAYERS ON THE LAST MILE

A living system: Our journey through the inner-city delivery microcosm shows innovations in various stages, from pilot phase to test-market application.

by Jan-Philipp Hasenberg
and Tobias Schönberg





1. Delivery by drones

Packages up to 2.3 kg can be delivered in 30 minutes or less. The drones fly under 120 m and weigh less than 25 kg. Distances of 16 km or more.

Example: Amazon Prime Air

2. Airbnb for sending goods

Peer-to-peer service that connects people who need to send something from one place to another with people going that way anyway. Operates via mobile phone to pick up and deliver.

Example: Nimber, Norway, U.S.

3. Multifunctional vehicles

New ideas for specific delivery vehicles for the last mile: Electric pickups, small trucks or minibuses. Manufacturing of small batches via smart platform strategies or process innovation.

Examples: DHL Streetscooter, Tesla

4. Car trunk drop-off service

Customers order online, a TAN is generated, delivery staff gets the car's position via GPS data. The TAN in combination with a special device in the car turns it into a mobile drop-off facility.

Examples: DHL/Daimler, Audi/Amazon

5. Distribution via subway tunnel

System links consolidation centers to strategically placed nodal points in town using modular pipelines laid alongside or under existing or realigned transport corridors. Palletized or bulk freight is moved in purpose-built capsules by magnetic propulsion.

Example: Mole Solutions, UK

6. Distribution via freight tunnel system

Comprehensive automated logistics system located 50 m under ground. Unmanned electric vehicles are cruising with constant speed (30km/h).

Example: Cargo sous terrain, Switzerland

Illustration: Carlo Giovani

The van

Reincarnation of an urban warrior?

As e-commerce continues to grow, the delivery business in inner-city areas is becoming a more fragmented and more challenging game. Vans with unprecedented flexibility and connectivity can offer manufacturers the right provisions to win a substantial part of it.

by Norbert Dressler, Tobias Schönberg and Georg von Thaden

Cities will always be places where material goods are produced, distributed and consumed. Millennial consumers are infusing this status quo now with a new dynamic: born into a world of faster food, just-in-time production and instant messaging, they are constantly calling for more and faster deliveries to fulfill their needs. The growth of e-commerce has become a generational phenomenon with over half of millennials expecting same-day delivery as the norm. Meanwhile, transport infrastructure has reached its natural limits, such as the maximum number of vehicles per hour on any given stretch of road.

HOW CITIES WILL CHANGE

In consequence, traffic jams, emissions and the collapse of urban infrastructure are making living conditions worse in many cities.

Urban landscapes are changing as well. Developed cities will see a return of the elderly population as public transport is made increasingly more accessible and individual vehicle use is restricted. More and more people want to benefit from short distances in their day-to-day life and urban infrastructures. Therefore, cities will be re-developed into "urban villages" to prevent the urban sprawl typical of contemporary cities. As a result, developed

The numbers game

Ever increasing numbers of people in cities are doing more and more business online, overloading the transport infrastructure.

81.5%
of the population in developed countries will live in cities by 2030

10%
e-commerce increase p.a. in Europe, with this set to double by 2030

60%
of value share is generated on the "last mile"

70%
of German customers would like to use a 1 hour delivery service

74%
of French customers would like to have free delivery

Sources: UN, eMarketer, Roland Berger

countries will experience an explosion in the variety of mobility and transport solutions on offer.

THE LAST MILE: RICH PICKINGS FOR THE WHITE VAN

It is not surprising that the last mile in the transport process – the delivery of goods from a hub to the end customer – is becoming the new battleground for the logistics business. Take France: it is estimated that 10 to 15% of all deliveries are currently made to private individuals in the Paris area. This figure might even jump to 20 to 30% after 2025. Not only volume shares but also margins are significantly higher on the last mile than on long hauls. So the last mile of the logistics chain will experience the greatest disruption: There will be decentralized, partially mobile depots; faster service; smaller vehicles provide zero emission delivery and make use of existing capacities by using sharing schemes; and platforms allowing for a higher number of operators distributing goods. In the long run, even autonomous delivery is conceivable.

Meanwhile, lines between players in the logistics chain are becoming blurred, incumbents are increasingly falling prey to flank attacks by clever, more agile and – more often than not – more financially adept new players. Regardless of the business sector in question, barely a week goes by without a new operator muscling in on an established player's territory. UberCARGO provides a van with available space plus a professional driver within minutes. The delivery can be tracked via smartphone. Peer-to-peer-services have also been introduced to the cargo segment. The Norwegian start-up Nimber offers a network of private drivers that are able to transport goods. At the same time players from adjacent industries, like e-commerce giant Amazon has extended into the logistics value chain (see box right). It is fair to say that some of the maneuvering going on is typical of players keen to consolidate their position by offering services at prices that are not sus-

The Amazon approach – Delivery 4.0?

Amazon has a wealth of innovative ideas supporting last-mile deliveries to retail customers around the world. The impact on both manufacturers and operators of light commercial vans will be significant.

- **Technology:**
  Flex app: Amazon has taken the Uber concept and applied it to the delivery business. Amazon developed an app designed to enable individuals to deliver goods previously transported by professional services (e.g. DHL).
- **Operations:**
  Amazon Fresh: By expanding its huge offer of goods to include fresh groceries, the company is becoming a serious competitor to traditional retail chains. So far the service is being tested in selected U.S. and European cities.
- **Infrastructure:**
  Amazon relocated distribution centers from the outskirts and remote areas to the city center to allow for faster delivery.
- **Further innovations:**
  Drones for delivery, e-scooters (for circumventing urban traffic jams), Prime Now delivery (2h delivery, or 1h delivery for an additional fee).

tainable in the long run in order to force others out of the market over the short term. In this new world, network planning and emissions efficiency will be replaced by speed and agility. Innovators count on small delivery modes like bikes, cars and light commercial vehicles. This is why we see opportunities for the white van: It is one of the most flexible means of transport on the last mile.

THREE TRENDS IN INNER-CITY TRANSPORT

It is not clear yet who will set the pace within the inner-city transport environment of the future. The automotive industry has to stay agile and flexible to serve the needs that emerge. Such agility would position them well for future inner-city logistics. But they have to innovate to stay ahead of the curve. We believe that three trends will influence the future of the van business: We call them "Green", "Efficient" and "Premium".

Green. Protecting the environment and preserving natural resources has become a defining characteristic of modern life. For the automotive and transport industry this means avoiding traffic and emissions in inner cities as much as possible: Singapore was the first city to implement an electronic road pricing system, which helps control congestion, e.g. via higher tariffs for users with high mileage and during peak times. Stockholm introduced a permanent congestion charge in order to reduce traffic during rush hour by 10 to 15% and to enhance the quality of life in the city center. Other models have even bigger impact on the automotive business, ranging from no-drive zones for diesel vehicles to complete city logistics schemes set up by the municipal government, e.g. those in Gothenburg or Amsterdam. With electric vehicles gaining ground and limited parking available for delivery vans, the question for the last mile is how green and carbon-neutral future transportation and logistics fleets will be. Electrically powered, these fleets will form part of an integrated inter-modal transport solution. Conventional trucks will handle intercity delivery between new logistical hubs to be built beyond city limits, with electric vehicles supplying the inner-city districts. In accordance with the hop-on/hop-off principle, the vehicles will serve pre-determined routes, timetables and stops, where consumers or other authorized persons can load and unload freight. Consumers want green solutions and are keen to demonstrate that their consumerism is environmentally acceptable.

Efficient. Efficiency remains the backbone of any strategy that van operators and manufacturers may carve out. That's why total cost of ownership is relevant for the question of whether innovation in the logistics environment will generate future profits and resilient business cases in the future – customers are highly price sensitive. We already see fleets merging and the transport of people and goods beginning to converge. There is a much greater focus on the route planning with so-called "milk runs" forming a standard delivery pattern. The "efficient" trend is primarily driven by telematics services providing instantaneous information on the transport vehicle market and storage capacity in the logistics hubs. However, the benefits of an

It is not yet clear who will set the pace within the modern inner-city transport environment.

Illustration: Carlo Giovani

inter-modal approach can be played out here too with the full range of transport options ranging from conventional truck to drone and even to pedestrian. The use of radio frequency identification (RFID) broadcasting will make intelligent parcels a reality. Smart trucks using GPS and telematics data feature strongly in this scenario. The vehicle location and the traffic situation are transmitted to the route planning system, which adjusts the order of delivery depending on the volume of traffic. Information received from RFID tags attached to parcels can be constantly updated and the driver informed if the wrong parcel has been loaded. Although the transport process is separated from the logistical planning, it is imperative for the sales and transport provider to operate in unison. This asset-light approach is provided by successful pioneers in this field, such as the Hong Kong-based online logistics platforms GoGoVan and Easyvan, with over 26,000 vehicles playing the role of key intermediary. These platforms make use of intelligent parcels, equipped with RFID chips or similar technology, they know where they have to go and simply hitch a ride with the intermediary, which guarantees delivery. Hitchhiking, as the name suggests, is not dependent on a specific delivery schedule. Because it picks its routes opportunistically, it is not particularly fast; however, it requires no planning and utilizes spare capacity, making it remarkably efficient. The most important pull factors here are that sale and transport of goods are part of one and the same process. Therefore, the delivery costs must be covered by the purchase price.

Premium. A first-class offer can have different characteristics – depending on the future needs of the customer. Premium is whatever urban customers regard as exceptional and for which they are willing to pay an above-average price. This trend is driven by the maxim "you get what you

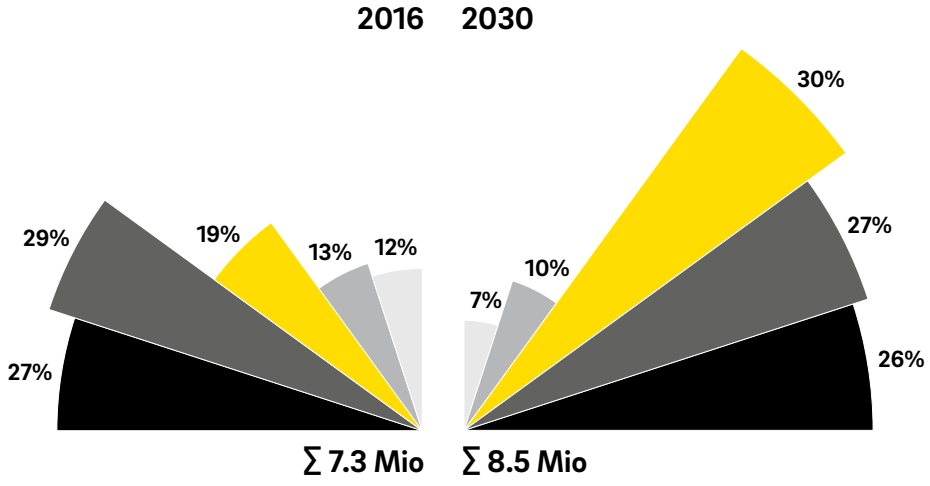
Illustration: Carlo Giovani

AND THE WINNER IS ... THE SMALL PANEL VAN

While the van market as a whole is not expected to change significantly between 2016 and 2030, the small panel van is set to almost double in volume. The explanation is simple – this category of vehicle is best suited to a mix of goods and people transport thus offering the greatest flexibility (and efficiency) within the larger van segment.

Van type	Examples[1]
Mini van	Suzuki Carry, Daihatsu Hijet
Light van	Fiat Doblo, Mercedes Vaneo
Small panel van	Nissan NV300, VW Transporter
Large panel van	Peugeot Boxer, Fiat Ducato
Heavy van	Mercedes Sprinter, Renault Master

[1] Depending on the vehicles' configuration, models can belong to different groups



Source:s IHS, Roland Berger

pay for." Besides special requests referring to treatment of the product itself (e.g. cooling of perishable goods, safety of valuable goods) the delivery itself becomes part of the premium experience. The most obvious dimension is time: same-day delivery options are down to between 30 minutes and 2 hours. But premium does not necessarily mean "fast." It could also mean a delivery arriving precisely when the customer needs it to – even in the middle of the night. Here, too, telematics plays a central role in having all information at hand. Predictive demand analysis (i.e. having the goods placed in the logistics hub before the order itself even comes in), self-driving "robovans," which are part of the same diverse transport mix serving the "efficient" category and the use of mobile devices are all standard. With extraordinary precision, the moment an order comes in, the exact time of delivery down to the minute is being communicated to the customer. Other customers might regard environmental sustainability, e.g. emission -free or a package-free distribution chain as premium, or the mode of transport – for example, by drone.

WHICH VEHICLE IS GOING TO CONQUER THE LAST MILE ...

Vehicle manufacturers and operators have recognized that their business model has just gone west (see interview on page 25). We see some parallels to the development

in the passenger car segment, where a revolution is in full swing. The business is experiencing its most extensive renewal of the last 100 years. Mobility service providers are expected to take the front end to the customer.

So van manufacturers too might have to do more than just build and sell vehicles in the future. For a start, let's take a look at the product itself. The vision is of a four-tiered structure, comprising smaller inner-city delivery vans and larger long-haul trucks as well as two new categories; "small" long-haul trucks connecting the new urban logistics hubs and delivery trucks to feed the catchment areas around the logistics hubs. In terms of volume we expect the small panel vans (VW Transporter and Nissan NV 300) to benefit the most from the shift in the delivery ecosystem (see box p. 21). They offer enough room for passenger comfort, while their cargo space is ideal for the smaller batches of customized and fragmented inner-city freight. To make the most of this development, vehicles will become both simpler in terms of their construction and simultaneously more complex in their ability to undertake a vast range of tasks.

... AND WHAT WILL IT LOOK LIKE?

This is why the van we know today needs to be reinvented. But in this part of the commercial vehicles segment, spectacular innovation activities are still not particularly visible. Yet there is room for disruption (see exhibit on page 22): the delivery vehicle of the future might also act as a mobile storage facility. For the transport provider the last-mile-market will enjoy much greater diversity. Goods and people might be transported together with goods taking up unused passenger capacity where available. Whoever is to serve these future needs – notably vehicle manufacturers – will need to adapt the van we know today.

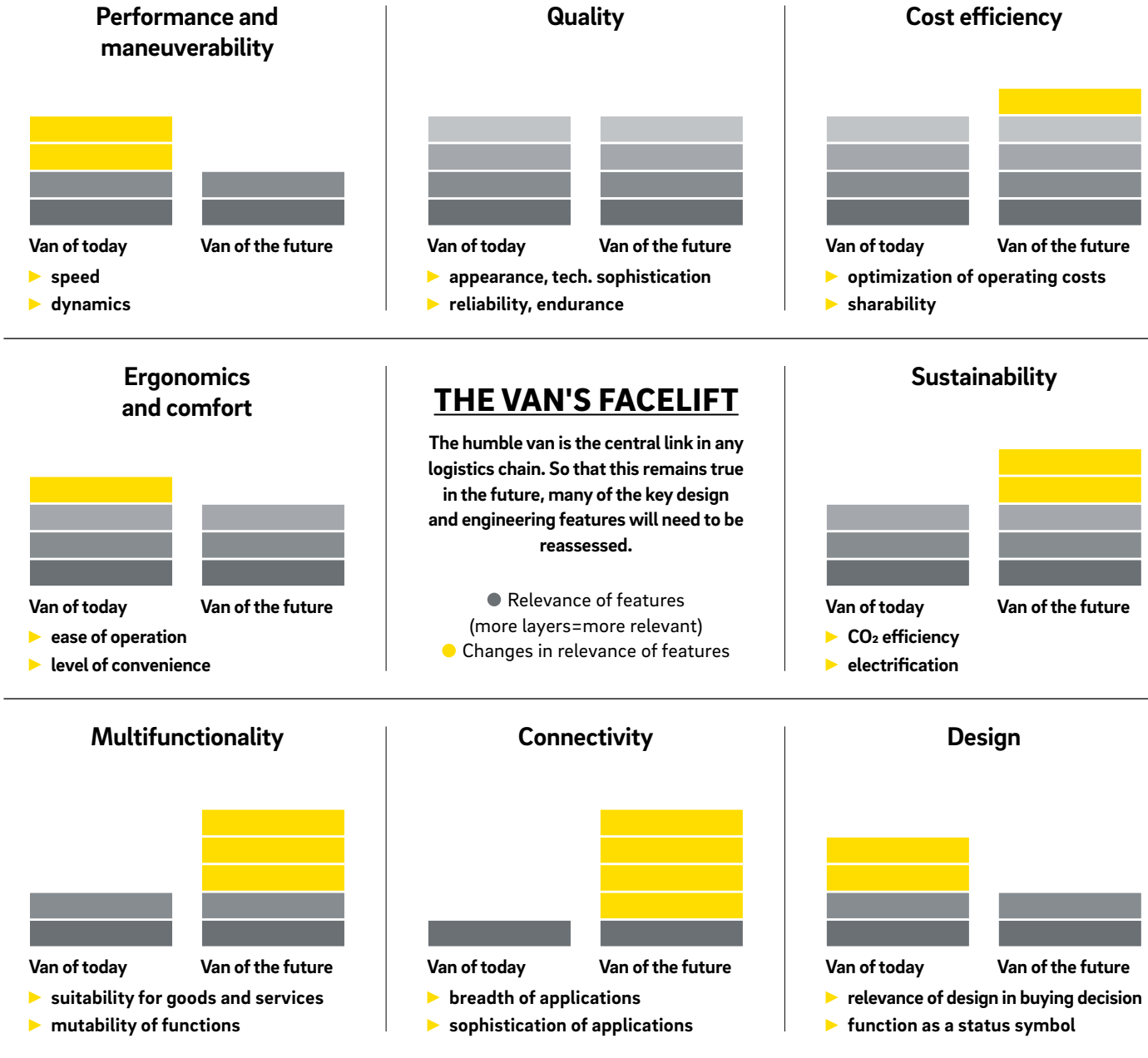
Vehicles should become both simpler in their construction and more complex in their ability to undertake different tasks.

The most relevant feature in the future will be the connectivity. Taking orders, reporting status, communicating with other vehicles, navigating the best route and confirming delivery of goods are all part of the new transparency demanded by millennial customers. Telematics will play a greater role here with a much greater range of business management options, including so-called "drive-by ordering". Predictive demand analysis will enable the vehicle interior to be configured just-in-time to maximize the utility of the vehicle at any given moment.

Multifunctionality will be a central challenge of this new range of vehicles with seemingly magical solutions. The secret of their success lies in the built-in flexibility of the passenger/load area configurations. Another relevant feature is engine performance. Whereas it used to be a central defining factor of commercial vehicle design and engineering, in the future it will

Illustration: Carlo Giovani

be highly tailored to the specific task of the vehicle. In urban terms, that translates to vehicles with a limited top speed, electrified powertrains and a smaller footprint. Dynamic characteristics of the vehicles of the future will also be different, with a focus on generating predictable, low speed maneuvering ability paired with smart navigation. And regarding interior ergonomics, simplification will be the order of the day. Thanks to automation, driver input will be reduced to monitoring tasks and manual override where required. This will lead to a highly reduced instrument binnacle and driver cabin. The same goes for comfort with the maxim being simplicity and ease of access and exit for vehicles carrying both people and goods. Quality is a must-have – today and even more so for the van of the future. The understanding of quality will change: While today it is linked to appearance and level of technology features, it will be about endurance and reliability in the future. Technologies like "predictive maintenance" and "remote diagnostics" will contribute to quality because they allow operators to anticipate problems before they occur. The revolution in connectivity will come at lower costs. As total cost of ownership will remain the single most significant



Source: Roland Berger

Automotive players need to open their eyes to the parts of the delivery business that might be disrupted first.

factor for transport providers, 24/7 operability with trip planning and performance analysis provides them with the best means of managing and improving their costs.

Future vans will have to be able to meet the increasing requirements of emission-free zones within cities. We expect electrification to be the only way forward. We also see a changing role of design, where "form follows function" might be the credo. The new vehicles will be modular and infinitely more robust, accumulating significantly greater mileage than is the norm today and for hugely diverse tasks.

A SHAKE-UP IN THE LAST-MILE DISTRIBUTION GAME?

We expect that the last-mile transport ecosystem will run through various changes. In the first phase new intermediaries will enter the scene, with the order process no longer managed by the manufacturer of the product or service, but over a third-party platform. The mix of transport fleets might be reshuffled, smaller companies and one-man enterprises fulfilling the task. Regarding freight consolidation platforms they could be taken over by major logistics service providers (LSP). They could prevent smaller providers from entering the intercity transport market, ultimately serving all B2X businesses in the long run. There is also room for C2X business in either inter- or intra-city operations.

In addition, the hierarchy of players might change, which has implications for van manufacturers' portfolio of business partners. As an innovation leader, Amazon is conquering the full range of the value chain, which will lead to a crowding out of traditional operators – precisely the traditional customers of van manufacturers are also gaining an edge by developing their own zero-emission vehicles tailored to the specific needs of delivery staff in an urban environment. DHL for example decided to team up with RWTH Aachen to get its street scooter pilot on the road – and not with a traditional manufacturer.

There will be other segments to serve: Where the delivery time is between one to four hours, margins are considerably lower while customers are more willing to accept inconsistencies in projected delivery times.

At the same time mini fleets and one-man operations offer better cost-effectiveness, and flexibility, are able to respond in taxi-like fashion at extremely short notice, switch between transporting people and/or goods and have vehicles available for private use.

BE AWARE OF DISRUPTION

The future city environments with their various regulatory rules will be an important trigger to define the future requirements in the van segment. End customers too will have a stronger influence over conditions within the market. Other players like operators and logistics service providers are in a transition phase that has to be closely monitored. There might be much greater competition between logistic fleet operations and private individuals working for logistic platforms in a freelance capacity. Fragmentation of customer needs might force vehicle manufacturers to think about how to offer smaller batch sizes of specific models at an affordable price.

The transition phase makes the transport logistics environment a challenging one for automotive players. They need to dare to leave their beaten track. Opening their eyes to the parts of the business that might be disrupted first, launching various initiatives to address new customer groups and their needs and – most important of all – having the willingness to innovate radically are the best recipes for success. Those manufacturers and logistics providers who think ahead today can become the leading players of the delivery world of tomorrow.

"Make room for new thinking."

The delivery van is an opportunity for the automotive industry to play a role in future transport logistics. We caught up with Ford of Europe CEO Jim Farley to talk about the future of commercial vehicles. The increasing importance of telematics and the opportunities to be had on the last mile of the delivery chain are reason enough for Farley to claim that the golden age of the delivery van is still to come.

Interview: Marcus Berret, Paul Entwistle
Photos: Claudia Janke

You've been with Ford since 2007 and became CEO Ford of Europe in January 2015. You're a car guy through and through – are you a truck guy too?

I learned to drive a truck when my family moved from Argentina to the U.S. It was a Ford F-150 pickup with "three on the tree" – basically a three-speed manual transmission with the gearshift lever mounted on the steering column. The first vehicle I owned was a Mustang that I restored myself before I even had a driver's licence. It seems like it was only yesterday that my parents called me "Jimmy Car Car."

What are you are expecting from the commercial vehicle market in the next 10 years?

As manufacturers start to tap the profit pool for commercial vehicles, I see two big trends leading to considerable disruption in our industry. The first is the tremendous amount of capital being allocated to the light commercial segments. The second is the impact of new mobility, which as yet remains unclear. New mobility is likely to be the most important development for future profit pools and the dramatic change of capital allocation to commercial industry will probably manifest itself in a lot of new products and that almost always means price compression and over capacity. So as vehicle manufacturing experiences greater competition, the mobility side reveals more and more opportunities to get involved and thus will become an increasingly significant part of our business.

Automation and electrification are a given for the manufacturers. Are there blind spots?

One blind spot is the very nature of urban environments and their transportation systems. They have a fundamental role to play in the future of commercial vehicles – by which I explicitly do not mean long-haul trucks – rather those vehicles that break the bulk down. National governments do not run cities and transport systems – although they have huge impact on them (see Germany's congestion zones). Talking to the professional managers responsible for transport infrastructure in cities like London or Paris, the first thing you notice is how different they are from one another, with diverse points of view, differing histories and their own unique problems – including of course congestion at the highest level. A second blind spot is the regulatory impact on manufacturers of all these cities across Europe making individual decisions on how they want to run transport. With such unforeseen hurdles, our solution as a manufacturer of commercial vehicles has been to engage the city directly and to do this very thoughtfully and carefully as to which cities you want to talk to – is it an Istanbul, a Paris or a London? They are quite different from one another.

Have manufacturers of commercial vehicles registered the threat of disruption?

The automotive industry has focused 95% of its attention on passenger car innova-

Jim Farley

Jim Farley took over as CEO of Ford of Europe on January 1, 2015 having joined Ford Motor Company in 2007 to oversee global marketing, servicing and sales, initially as Group Vice President, eventually becoming Executive Vice President. Previously he was employed by Toyota, which he joined in 1990 and where he became Group Vice President and General Manager of Lexus. He attended Georgetown University in Washington D.C. where he earned a degree in economics and computer science and received an MBA in finance from the UCLA Anderson School.

"The industry has not spent enough time on innovation in the van segment."

Jim Farley

tion and disruption. It has not spent enough time on the highly profitable commercial vehicle business. We think some of the trends will be similar, but most of them could be unique. The key to change is how the so-called "last mile" of the delivery logistics process can be transformed. You can't bring a washing machine into the city on mass transportation. Moving people requires very specific solutions, but moving goods and especially irregular goods or items being used by craftsmen is completely different from delivering a package bought on the internet.

The last mile is currently owned by van manufacturers and fleet operators, but other Uber-like competitors are on the horizon. Do you anticipate disruption?

Many of the cities are starting to develop logistics systems, just in the same way they have an operating system for the subway and other transportation networks. Some of the basics of that system like slot booking will play out – I personally don't believe that disruptors for this space will be the same ones as we see on passenger cars. Unpredictable logistics companies such as Amazon using a new operating system can provide customers with better value. They may be people not indigenous to an Apple or a Google – they may be quite different – but they still have to get their products delivered in big cities. They will be part of this solution and in a way for them it is vertical integration, but I think the artisan problem (the infamous "white van") is far beyond Amazon. For smaller operations there may be a different solution. It may be a navigation system that is able to expand their product base.

Are there business models out there that could work?

Cities are starting to look at monetizing their curbs to address congestion. Driving into the city becomes a process of slot booking like an airline landing pattern with a slot you have to pay for. As yet however, I don't really believe anyone has a vision for solving this, but Transport for London and other transport systems are getting there. How it plays out could be very complicated, with more efficient processes including telematics integrated into city transport systems, such as ETA and slot booking.

One in four trucks on European roads has little or no cargo on board. How will connectivity address this?

I don't believe there is one solution to the smart logistics question yet. In the medi-

um term, I see fleet telematics being the critical capability for any brand wanting to be a leader in the commercial business. If you can't offer dynamic vehicle routing, dispatching or diagnostics for small businesses, then you're not going to be competitive in Europe. What I can say is that the end solution will see a lot of venture capital investment and disruptors. I think in the case of the commercial vehicle business and getting goods in and out of the city, what we really need is an operating system, where people moving goods have a predictable system of data inputs using software that everyone can adapt to.

What can the automotive industry do to revolutionize the last mile?

We have to think about what our products are going to look like. There is a question whether the current small van is the right format. But we should make room for new thinking like Tesla has with high-end electrified vehicles. The B- and C-sized small vans have merged into one segment with the most successful players being the B-segment-based products, which have the lowest cost base but are larger in size. Electrification limits payload and with automated driving, the package may be very different from today. The same is true of the electrification itself – it may be different from that of a passenger car with ranges set at 250 miles. Vehicles will have the latest connectivity with software services helping operators to make their fleets more efficient, deal with the realities of congestion and all the complicated taxation resulting from it. Increasingly the software will treat an operator like an individual on the subway or a bus using city mapper-style smart apps and we will want to sync data coming off the vehicle to be used by the transportation systems. They are going to need that for their operating system as input. So working with the cities again will be more important to make sure that we understand their expectations regarding the data. The revolution is going to happen in the software.

Who will get ahead in this segment?

It is a very competitive space. Ford is the No. 1 commercial vehicle seller in Europe so we want to protect that position. There will be electrification, automation and great software, some of which is in-house and some outsourced. The wildcard here is if the form changes, if the transport business were to move from drones to something else. You could easily have a fresh, new product in the space to really mix it up. However, the truck business has long been the bedrock of our company's profitability. Now we are realizing, whether in China or elsewhere, that this can be a sustainable advantage for us and a differentiator for our brand. In traditional markets such as Western Europe, we see a lot more opportunity for Ford.

Let's take a look at the bigger picture – How are planners and municipal leaders making life in the cities easier?

You have the major cities such as Dubai and Singapore, which have been very public about their visions. Singapore is proba-

Ford

Ford is a global automotive manufacturer employing 199,000 employees at 67 plants worldwide. The company's core business includes designing, manufacturing, marketing, financing and servicing Ford cars, trucks, commercial vehicles, SUVs and electrified vehicles. Ford of Europe produces, sells and services Ford-brand vehicles in 50 individual markets employing 53,000 employees.

Discussion: (right to left) Jim Farley, Senior Partner Marcus Berret, Editor Paul Entwistle

"Urban environments play a fundamental role in the future of commercial vehicles."

Jim Farley

bly the best example. The real thought leader is London. Transport for London (TFL) is a unique organization. They face off against the customer. They're not removed from reality. They are practical people. They have to deal with changing political leadership – the former Mayor of London Boris Johnson made transport and pollution the focus of his campaign. His successor Sadiq Khan is making these plans happen. Transport for London has a long history of innovation. Now they are planning to get digital feed from bicycles. That's just the beginning though – goods are next on the agenda. Despite revenue constraints, they operate very well. As we start to engage in different cities in Europe, I see cities like Dubai, Singapore and London as highly professional, forward-looking benchmarks.

Society is increasingly anti-car. Does that worry you?

True, in London, I hear people saying things like "it's so nice not to have cars." In emotional terms, traffic congestion is on a par with smoking. Thus far regulations have focused on passenger cars. Now the regulators are looking to get vans with Euro 4/Euro 5 diesels off the road. Cities may well be faster than the EU in driving electrification requirements – Oslo is a good example. After opting for electrification, businesses said fine, but asked how they were going to get goods into town.

In addition, people will still want to eat in the city – food won't be delivered via the underground. Society is based on commuting – with Europe leading the world. I am concerned about the unintended social impacts of having goods restricted. At a certain point people will realize that they will have to buy an electric Transit van or a Focus just to get around. This will change the scale of our industry. Finally however, electric is a just a small part of the jigsaw. You have automation. You have software and when it comes to the vehicle moving goods in the next six months to a year, this will quickly go from "will Apple or Google have a car," to "what are the brands going to do with commercial vehicles?" and "What are the cities going to do to accommodate them?" This has had almost no debate or discussion within the industry, but the impact is fundamental.

What can you as a manufacturer contribute to sustainability?

We are a 113-year-old company. We have seen a lot of different politicians, and a lot of consumer trends. This is an issue that our Executive Chairman, Bill Ford, personally feels very strongly about. It's a family company – and like a few others in our industry, they think and act differently. We have shareholders and stakeholders like everyone else that are very important, but I have to say the way we think about customers isn't just about whether we will make money off them, but how we fit into society as a whole. My intuition tells me that our contribution will more likely come from commercial rather than passenger vehicles.

ASIA'S BIG CATCH-UP

The automated vehicles index[1] reviews the evolution of market and technology. It shows how leading automotive nations compare in terms of market position and industry performance. An update in two dimensions.

by Wolfgang Bernhart
and Thomas Schlick

AUTOMATED VEHICLES INDEX – Q3 2016

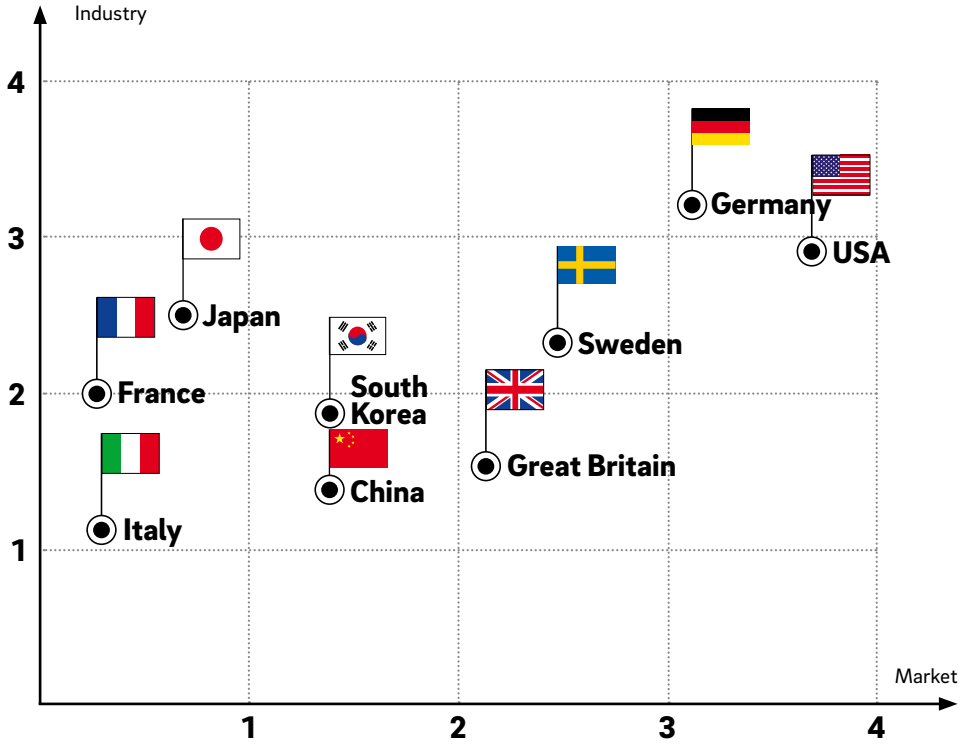
Industry:

Calculated based on development stage and competency level of automated driving technologies developed and produced by manufacturers in each country, and number of research areas and availability of functions.

Market:

Calculated based on sales figures for models with advanced driver assistance system (ADAS) functions, market share in home market and global market. Also reflects the assessment of the legal situation in the country in relation to automation.

▶ **Learn more in our full study:**
http://bit.ly/rb_AV_Q32016

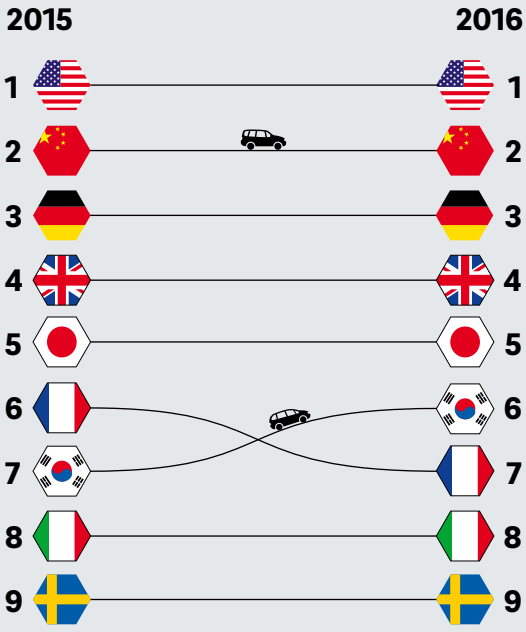


[1] Index produced in cooperation with the Automotive Competence Center & Forschungsgesellschaft Kraftfahrwesen mbH Aachen, all dimensions were ranked on a five-point scale, visualized results of analysis do not include the "legal framework" indicator.

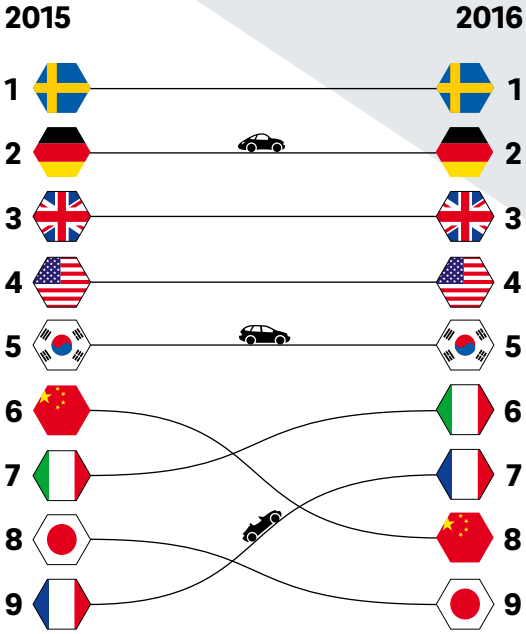
SMALL SWAPS

The top five countries producing cars with automated functions show little change compared to 2015. The U.S. and China stay champions here. Looking at market share, countries ranked 5th to 9th reshuffle their positions – France being a surprising winner.

Sales figures for vehicles with ADAS



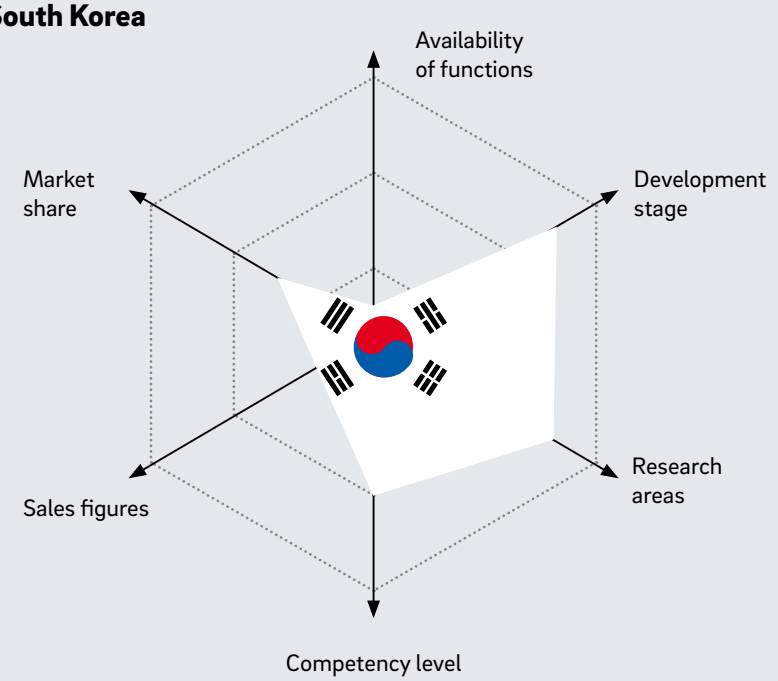
Market share



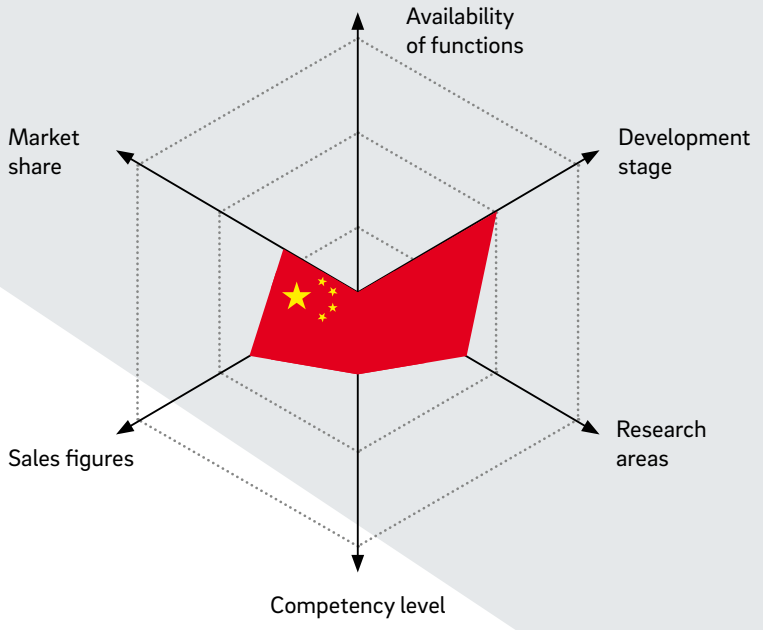
RISING STARS

As established nations, Germany and the U.S. will see strong competition from South Korea and China in the medium term. South Korea climbed from 9th to 6th place in the index in just one year. It made the biggest strides in the research and development stage and covers an increasing range of competencies. China's automakers also gained ground. Both countries have already caught up with France.

South Korea



China



Source: Roland Berger

Close-up: Electric component for plug-in hybrid vehicles

Tech deals power ahead

Suppliers' reasons for getting involved in the M&A market have evolved over the past four years. Now, consolidation is driven by the need to establish technology, material and process expertise.

by Felix Mogge and Thomas Schlick

For mergers and acquisitions in the automotive supply industry, 2015 was a very good year. The total deal volume, with five of the 255 transactions announced or closed worldwide was worth more than one billion euros. The positive trend continued into the early months of 2016, the M&A market becoming more nuanced now: The purely economic or financial logic aiming at creating larger players is no longer the key motivation for firms seeking acquisition targets.

TECHNOLOGY DRIVES DEALS

A trigger behind a growing number of deals is the desire to quickly get hold of relevant expertise – be it technology mastery, material know-how or process capability. This is because suppliers have long since been swept up in the great wave of transformation surging through the automobile sector. In June 2016, French supplier Valeo announced plans to purchase FTE automotive for more than EUR 800 million, the German target operating not only as a supplier of clutch technology but also a specialist in electromechanical components for automatic transmissions. This is a clear sign of the new priorities that trends like the rapid development of automated driving and electric vehicles are setting right across the automobile production system. A recent Roland Berger analysis found that a whole raft of components related to the internal combustion engine, alongside parts made of conventional steel and purely mechanical drivetrains will become less relevant as we approach the middle of the next decade – losing as much as 40% of their current revenue according to our estimates (see table on page 34). They will be replaced by the kinds of components needed for alternative drives, electronic parts to facilitate connectivity, advanced driver assistance systems (ADAS) and new lightweight materials. Innovation cycles being shorter, suppliers will have to quickly secure these new competencies in-house if they are to have any chance of keeping up with the pace of evolution. The trouble is that many of these new areas have very little or nothing in common, technologically speaking, with the autoparts providers' current business, making them practically impossible to access through organic growth. Intense M&A activity is what has enabled some industry players – primarily from the U.S., Canada, Mexico and Europe – to manage the transformation successfully so far. EBIT margins in most of these companies rose from below 6% to 8.2% between 2007 and 2015, with the European firms seeing margins rise from 6.5% to 8%.

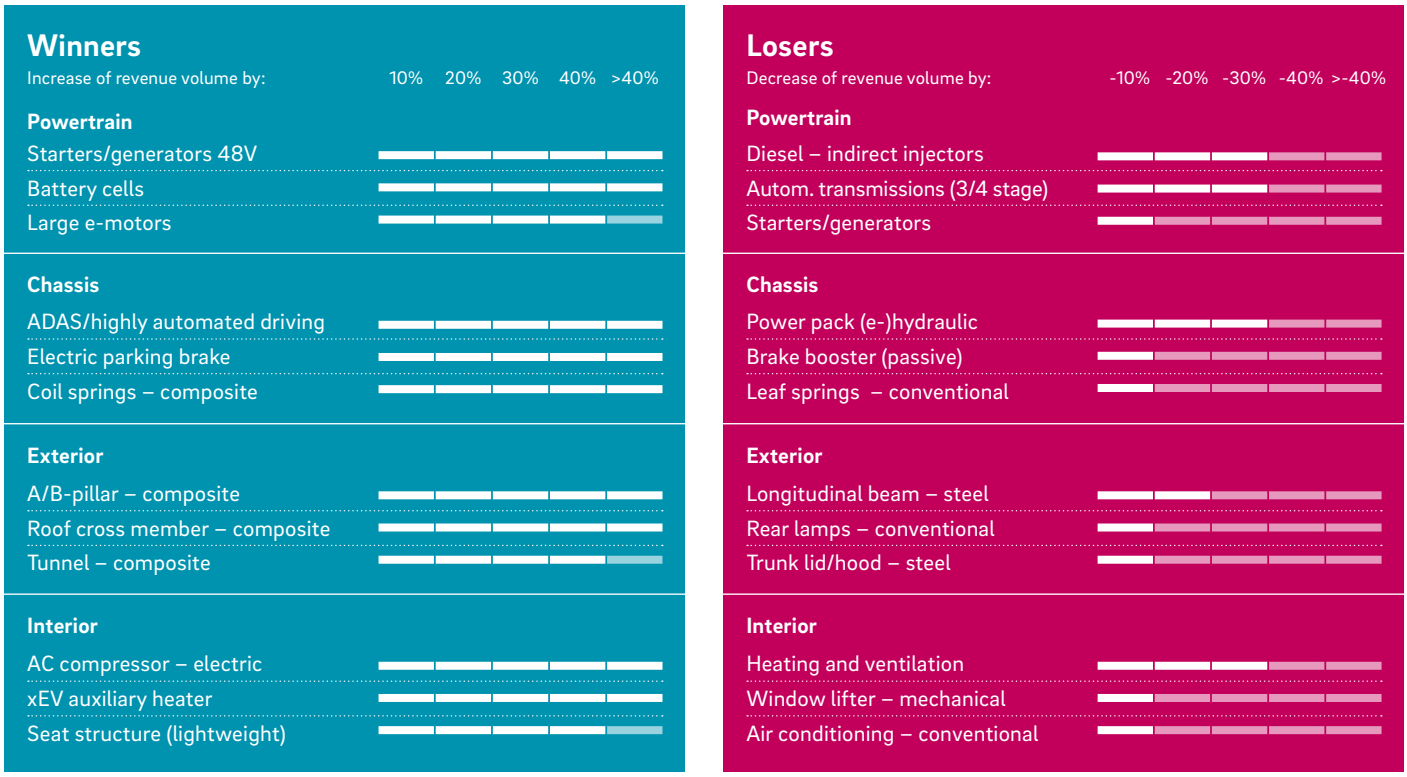
CHINESE FIRMS ON A SHOPPING TRIP

Strategic investors from China are no different to those of other origins in their desire to establish expertise. Where players from the Middle Kingdom differ is in their starting point. They are in a position where EBIT margins have been falling continually – from over 10% in 2011 down to 7.4% in 2015. With growth in the Chinese market set to be less dynamic than it has been over the previous decade, competition among autoparts suppliers has tightened dramatically. In a bid to get themselves in the best possible position going forward, China's domestic players are increasingly looking for acquisition targets in the U.S. and Europe. Unlike the deals we have seen Western supply firms make, the Chinese investors are not not just automotive companies but technology enterprises too, firms that can strategically complement their own business activities. These investors have considerable financial clout. Their objec-

Photo: Fabian Kirchbauer/BMW Group

WINNERS AND LOSERS IN THE COMPONENTS MARKET

Comparing revenue development forecasts in the global automotive components market.
We take a look at 2015 and 2025 to see how the market volume for different components is likely to change.



Sources: Roland Berger, Lazard

tive is to strengthen their expertise in state-of-the-art technologies for the mass market, to achieve an improvement in quality and to raise the efficiency of production processes at home. Case in point: the merger of Ningbo-based Chinese supplier Joyson, a manufacturer of components for climate control systems, electronics and sensors, and U.S. safety experts Key Safety Systems in a deal that will create a company with combined revenues estimated at EUR 2.7 bn. Born and bred in China, suppliers like these will be competing with providers in established markets. Market conditions will not serve to make mergers and acquisitions any easier in the years ahead. System suppliers appear to have reached the limits of OEM tolerance when it comes to the scale of market consolidation. Automakers do not want to be beholden to any one mega-supplier. Also at an end is the phase of abundant opportunities at low cost, when economies of scale were easy to realize.

MANAGING THE SKILLS PORTFOLIO

Supplier valuations in Europe and the U.S. have risen dramatically, prices in the latest round of strategic acquisitions being based on multiples as high as 9 times EBITDA compared with 5 to 6 times earnings as in past years. And the number of supplier firms that can genuinely claim to be leaders in the technologies of the future is not that large, setting a natural limit to the size of the pool of attractive targets. Automotive supply firms would be well advised to take a more active approach to managing their competencies given the level of disruption coursing through the sector. What that means, first and foremost, is they should not be tempted to make any rash takeover decisions just because of the availability of cheap money on the financial markets. Even if the strategic technology position is the key driver behind a deal, at the end of the day there still needs to be a workable business case in it. The smaller the pool of targets, the more investors will need to compromise and the harder it will be, after the merger, to actually realize the desired level of operational synergies. On the other hand, active portfolio management also means asking yourself which skills and competencies can still be expected to feature in the company's core business of the future and pulling the plug on any unprofitable business involvements that don't offer a future-proof outlook.

▶ **Learn more about the topic in our full study:** http://bit.ly/rb_supplier_2016

JIEFANG

China's first automobile, a multipurpose vehicle and a symbol of China's industrialization

The JieFang is the first ever automobile made by the Chinese. The first JieFang CA-10 – a light truck with four-ton load capacity – was introduced in 1956 by First Automobile Works (FAW), the oldest automaker in China. It is a model that came about during the honeymoon period between China and the Soviet Union after World War II. The Soviets provided technology, including the entire production line and technician support. However, the brand name JieFang means "liberation". This became true in the sense that the technology spillover effects in the JieFang supply chain and assembly line are largely what facilitated industrialization in China. Small wonder that the truck was identified as a symbol of national pride. Its image was even printed on a renmimbi banknote. Some of its glamour was lost in the changing market environment of the 1980s, when JieFang production suffered from overcapacity. The JieFang bounced back in 2006, when FAW and U.S. giant General Motors established a joint venture – encouraged by the Chinese government – to produce a diversified portfolio of commercial vehicles. It was a success: production and sales increased rapidly, keeping step with the construction and logistics boom in China, and the demand for "good enough" trucks in threshold markets. Today, according to the World Brand Laboratory, JieFang is one of the top10 automotive brands on the Chinese market.

1,300,000 units
JieFang CA-10 were produced by FAW in total

21%
of China's domestic market is held by the JieFang.

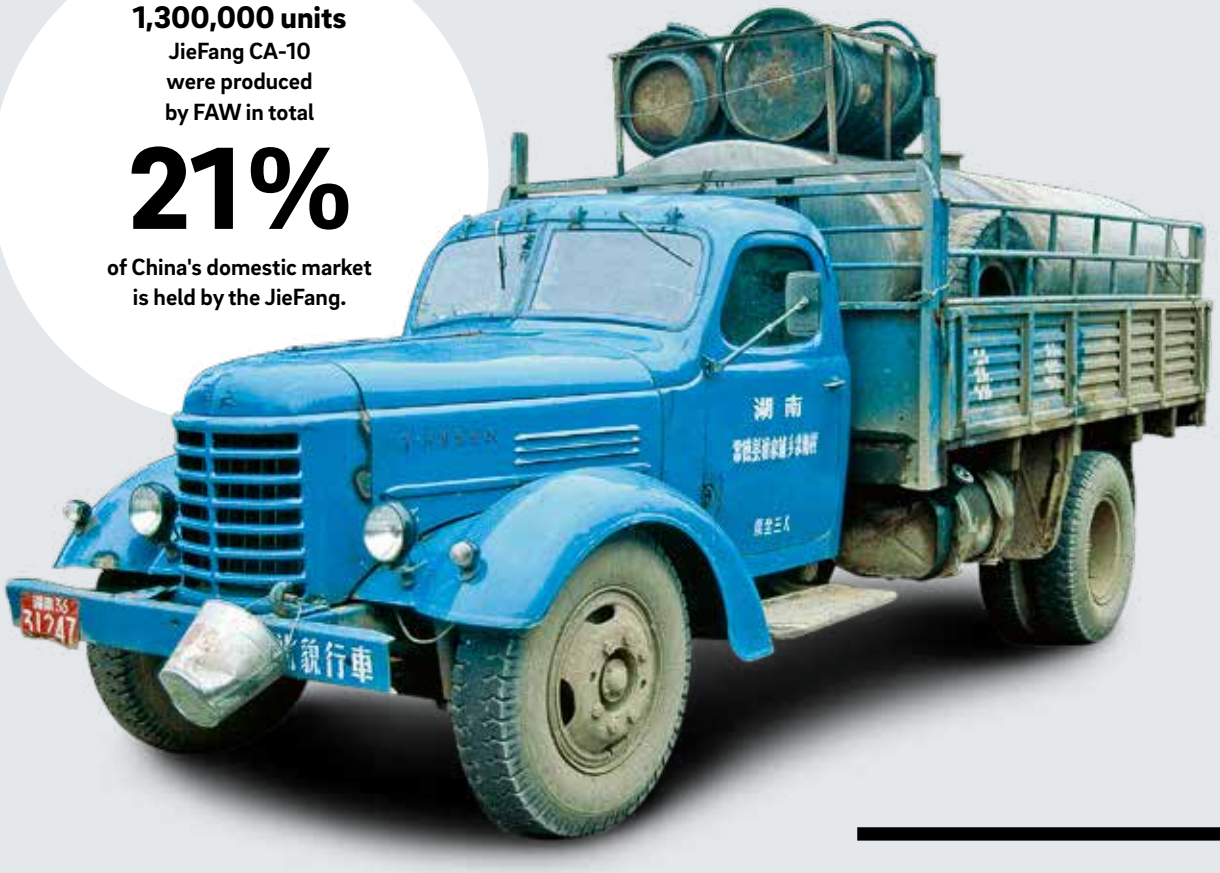


Photo: Hans Christian Davidsen

STUDIES

Food for thought

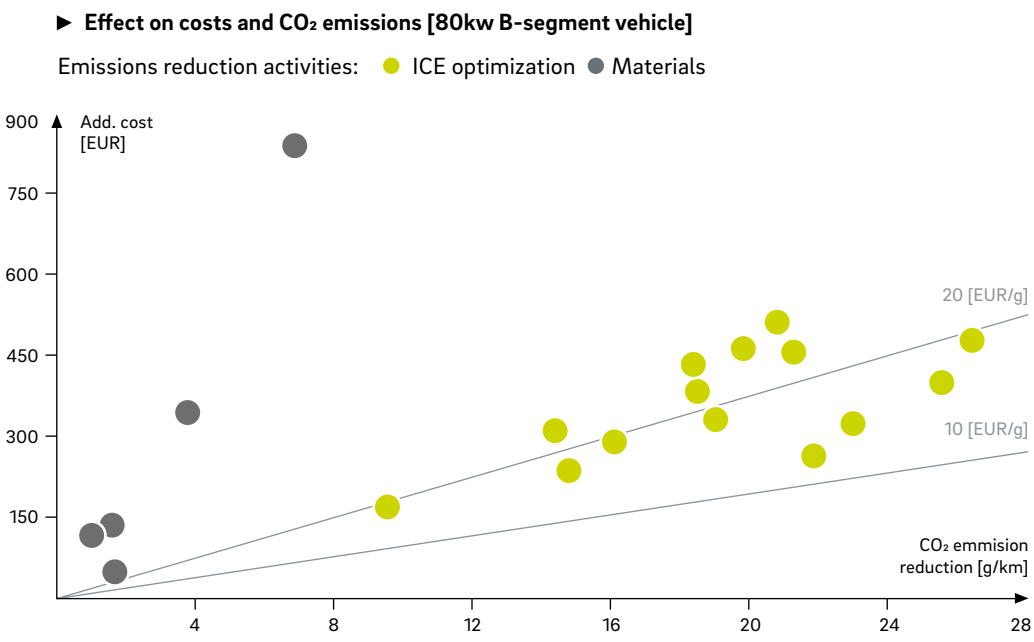
Take a deep dive and find out more about related knowledge, upcoming studies and magazines by Roland Berger authors.

MATERIALS

Cars on a diet?

We analyze the stages of light-weighting in the automotive industry. It is driven by regulatory requirements for CO_2 reduction in the main markets Europe, the U.S. and China. The internal combustion engine (ICE) provides the most efficient lever to get cars lighter and to meet emissions targets in the future, while exchanging materials still causes significant costs. What are the implications for manufacturers and suppliers?

► **Effect on costs and CO_2 emissions [80kw B-segment vehicle]**

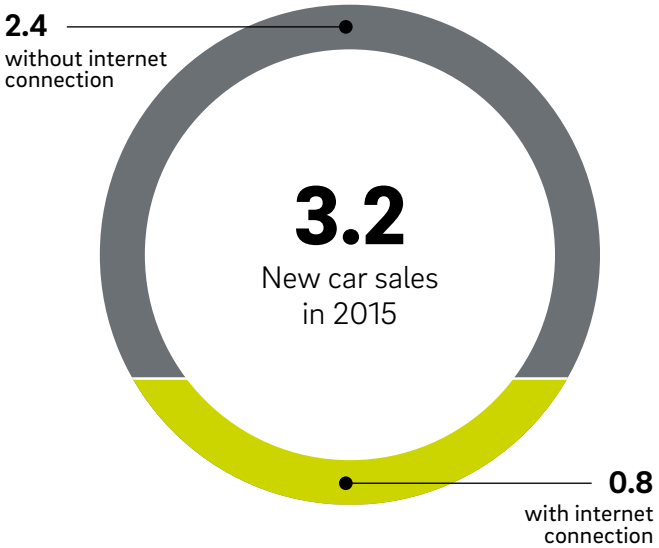


TECHNOLOGY

How to connect vehicles

Connectivity is increasingly shaping the mobility business. OEMs are working hard to provide proprietary solutions. Those still fall short in terms of time to market and achieving a certain critical mass within vehicle fleets. Third-party players have jumped in with wireless adapter-based solutions ("dongles") to exploit this opportunity using the onboard diagnostic ports. Whoever reaps network synergies first will win the race for the connected car.

http://bit.ly/App-based-dongle

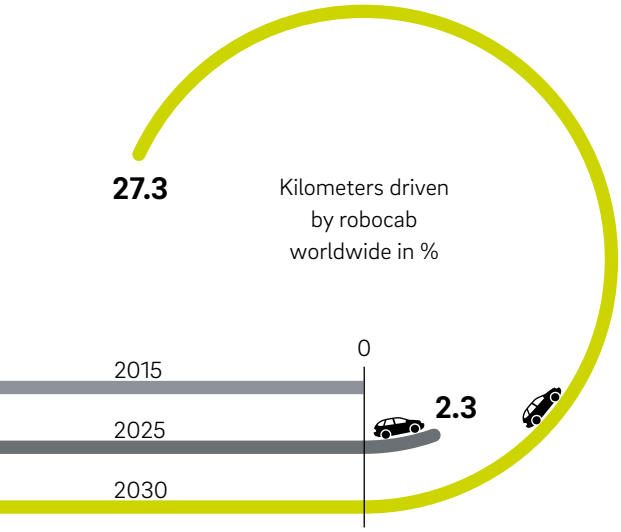


OPERATIONS

Future of procurement

We asked about 200 procurement leaders about future supply chain challenges in the automotive and in eight other key industries like consumer goods, chemicals or utilities. Automotive seems comparably well prepared for the challenges to come. However, finding the most innovative equipment for automated driving and electromobility will be the focus procurement experts have to care about. At the same time safeguarding costs and quality stays top of the agenda.

http://bit.ly/rb_procurement_2016



PROFIT POOLS

Robocabs ahead!

How will traditional players in the automotive industry earn money in the future? Based on an extensive simulation we estimate the effect of different factors like changing customer behavior, regulatory requirements and technology progress. In the end we are able to draw conclusions on the question of who will capture most of the future automotive profit pool. Our picture of the future proposes new automotive archetypes and possibly a new pecking order within the value chain. We look at their respective business models and suggest how to adapt player strategies for the new setting.

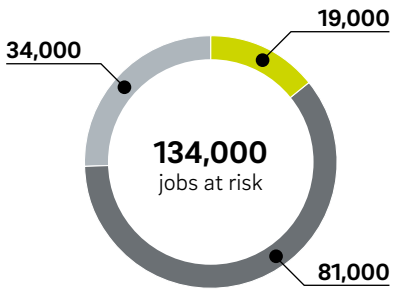
http://bit.ly/rb_AutoTransition_2016

REGULATION

Undesired side effects

Greenhouse gas emissions in 2030 will have to be 30% lower than in 2005. We take a look at the implications, estimating what those goals will mean for the European economy. The result: Many jobs in the automotive industry are at risk – due to different reasons.

- Higher capital costs
- Higher material costs
- Lower willingness to pay



RAILWAY MAINTENANCE

On the digital track

Maintenance represents a major portion of costs for every rail companies. What will digitization bring to the business? We interviewed senior railway industry executives. Their ideal vision is a secured data network with open data exchange between operators, manufacturers and other maintenance providers.

20%

potential for cost reduction in railway maintenance by digitization

http://bit.ly/rb_RailMaintenance_2016

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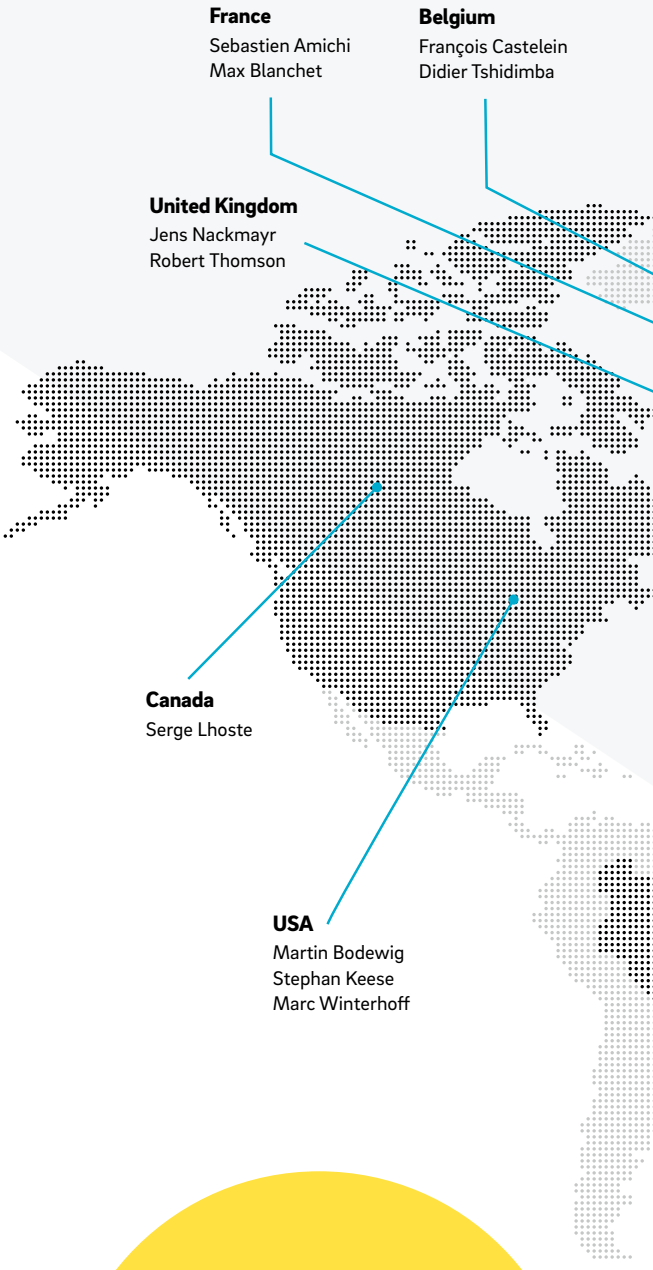
We advise all relevant players in the automotive industry – car and commercial vehicle manufacturers, suppliers and many more – and deliver top-quality projects. With our seamless global team setup and focus on content that matters, we cover the automotive industry's entire value chain. Our insightful studies and use of proven tools contribute to our position as automotive thought leaders



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Our mission is to support global manufacturers in seizing the opportunities of the future. Whatever your concerns – from cross-functional transformation programs to innovative growth strategies – we know where to take action to get you on the right track.

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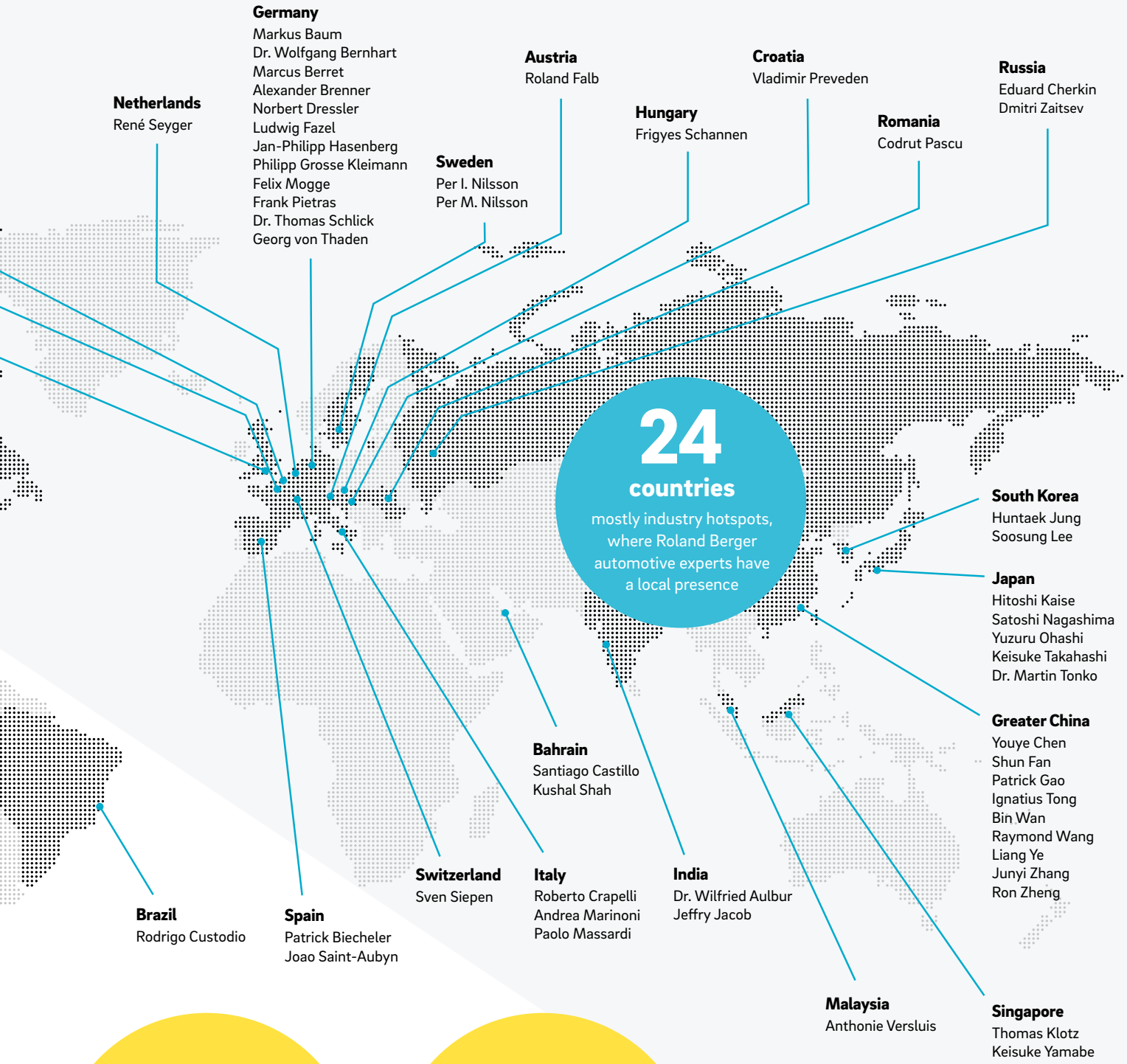
2,500

projects

for the automotive industry in the last five years, spanning all aspects of value creation



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