

# *How to be No. 1*

## Facing future challenges in the automotive industry



# *Introduction*

The automotive industry is a growth industry. It has broken record after record in recent years. Sales and production in China are booming. On the other side of the globe, North America's strong recovery continues to surpass expectations. 2013 marked the US's fourth straight year of sales increases of over 1 million units.<sup>1</sup> Europe hasn't come back as quickly—but even here some manufacturers have posted record profits, and it looks like the region may have turned the corner in 2013. By 2020, annual global light vehicle assembly is expected to increase by another 25 million units. The 100 million unit mark will be crossed even sooner—by 2017. In fact, by 2020 light vehicle assembly should top 107 million units.<sup>2</sup>

But along with record growth, the industry is also facing unprecedented challenges. Consumer expectations are transforming. New technologies are dramatically changing vehicles, from the advent of the 'connected car' and enhanced driver support to better fuel efficiency and new or improved powertrains. Automotive manufacturers and suppliers are confronted with ever greater complexity as a result of increasing numbers of products and options, shorter technology cycles, increasing pressure to innovate and global supply networks. And at the same time they need to balance the needs and demands of customers, investors, regulators, non-governmental organisations (NGOs) and even the general public.

But without pressure, there would be no diamonds. That's not just true in geology—the automotive industry shows that challenges can also spur progress in business too. Tough competition makes efficiency, inventiveness, flexibility and decisiveness mandatory. What are some of the keys to success in this fast-moving environment?

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1 Automotive News

2 PwC Autofacts 2014 Q2 Data Release

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**Know your markets.** Europe has faced tough times, but may have turned the corner. The BRICs are still vital, but while China is booming, Brazil, Russia and India have slowed down. And North America continues to regain the ground it lost during the crisis. While these are some highlights of the automotive markets, we think it's critical to go deeper. There are significant variations in the health of European markets, for example, and while China is booming, some Tier 1 cities are challenged by congested highways and environmental concerns. Automotive executives should pay close attention to market dynamics and position their companies to take advantage of them.

**Build the brand.** For most consumers, the decision to buy a car is made at both a rational and an emotional level. For manufacturers, developing strong products is the essential starting point. But enhancing service is important too – and remembering that every contact with the customer is a chance to build a relationship. And brands need to resonate with car-buyers who choose with their heart as well as their mind. Emotional marketing isn't just a fad; it's an important trend that automotive producers should embrace.

**Adapt production strategies.** Even companies that have been successful should keep transforming their business – standing still means falling behind. That means moving to the markets that are growing, like China and South East Asia, Brazil, Russia, India – all will be increasingly important. The industry's regional footprint should change substantially – a process that's already begun. Automotive companies should be able to cope with complexity. For executives, that means fully understanding the true direct and indirect costs of complexity, but also its benefits, so they can make better decisions.

**Set the right priorities.** The automotive marketplace is transforming, and so is the relationship between OEMs and suppliers. Some suppliers are becoming important partners in innovation; others are making big strides in efficiency. And many are joining automotive producers as they move to growth markets. Every supplier should carve out its own position in an extremely complex global network. That means managing relationships and building on your strengths.

**Take a long-term view.** Automotive producers are facing increased pressure from regulators and consumers to improve the environmental performance of their products. They're already making significant progress, and they're also improving their own environmental performance. But that's only the beginning of developing a truly sustainable business. Economic and social factors are important too. Better transparency across the whole supply network will help automotive producers understand their true impact on the environment, economy and society. It can help reduce business risk too. Corporate sustainability isn't just 'nice to have' – it's a prerequisite for future success.

Those leaders responsible for driving automotive companies have important decisions to make. They should create a coherent strategy, define goals and find ways and the right people to meet them. This report doesn't have all the answers, but we hope it provides some useful starting points for further thought and discussion. We're looking forward to continuing the conversation with you.

Sincerely,

**Rick Hanna**  
*Global & US Automotive Leader*

**Felix Kuhnert**  
*European & German Automotive Leader*

Note: this report draws upon selected chapters of a longer study published in September 2013 by the PwC Automotive Advisory practice in Germany, written with input from gravity GmbH. It also includes updated figures and additional examples from other regions. Automotive production & assembly forecasts are based on PwC Autofacts analysis unless otherwise stated. The longer study, 'How to stay No.1 - Impulse fuer die zentralen Herausforderungen in der Automobilindustrie' is available (in German) for download at [www.pwc.de/auto](http://www.pwc.de/auto).



# Markets

## Looking for the new equilibrium

Taken globally, the automotive industry has expanded significantly in recent years, driven largely by strong sales in the BRIC nations and a solid post-crisis recovery in the US. The European Union has shown another picture, though. With a more difficult economic situation, new car registrations have declined for six straight years.<sup>3</sup> And developed markets in the Asia Pacific region have faced tough times too, especially in Japan, where the aging of the population is having an impact.

By the end of 2013, there were some indications that the worst may be over in Europe. Improvement in the Eurozone continued in the first quarter of 2014, although it's still too soon to say for sure how sustainable the trend is.<sup>4</sup> What we do know for certain is that the automotive industry's center of gravity is moving. New customers, especially in Asia, are already driving strong sales today, and that will be true tomorrow too. Many OEMs are following a "build where you sell strategy" and moving additional production and development investments to markets where sales are growing – and increasingly, so are suppliers.

In short, the automotive industry is transforming. Even in the regions where times have been toughest, some companies have weathered the recent economic storms better than

others. What strategies have they used? And what factors are decisive for success over the middle and long term in the global marketplace?

We think the answers lie in reading the dynamics of the market as accurately as possible, and then positioning your company to take advantage of them.

### *Europe – on the road to recovery*

Government debt, rescue plans, reforms, recession: the challenging situation in Europe has held many customers back when it comes to purchasing a new car. That's not a big hardship for most. Particularly in Western Europe there is a broad segment of the population that already owns a vehicle. And when money gets tight, many consumers simply keep driving it a bit longer. Since the historic peak in 2007, when in Europe (EU27 + EFTA) more than 18 million new vehicles were registered, new registrations have been declining.<sup>5</sup>

The long slowdown in one of the world's most important automotive markets has taken its toll on many OEMs. One French producer booked losses in the hundred millions in 2012. But another European OEM posted record profits that same year. Why such a disparity?



<sup>3</sup> European Automotive Manufacturers Association data; <http://www.acea.be/statistics>

<sup>4</sup> Markit, "Eurozone recovery prospects brighten as France returns to growth", 24 March 2014, [http://www.markit.com/assets/en/docs/commentary/markit-economics/2014/mar/EZ\\_Composite\\_ENG\\_1404\\_FLASH.pdf](http://www.markit.com/assets/en/docs/commentary/markit-economics/2014/mar/EZ_Composite_ENG_1404_FLASH.pdf) See also European Commission economic databases and indicators, [http://ec.europa.eu/economy\\_finance/db\\_indicators/surveys/time\\_series/index\\_en.htm](http://ec.europa.eu/economy_finance/db_indicators/surveys/time_series/index_en.htm)

<sup>5</sup> European Automotive Manufacturers Association data; <http://www.acea.be/statistics>

## New models are helping to gain ground in tough markets

### Where's your market?

One answer lies in regional differences. From 2007 to 2012, new car registrations decreased almost uniformly across Europe with only a very few exceptions – but there were big differences in the order of magnitude. Germany declined around 2% of 3.1 million units. Contrast that with a drop of 80% in Greece and 53% in Portugal. Spain plunged 57% too, while Italy dropped 44%. And while the French drop of 8% was modest in comparison, the total decline in these three markets was 2.1 million unit sales, compared to Germany's drop of around 60,000 units.<sup>6</sup>

These regional differences over the past several years are one of the primary reasons for OEM's differing levels of resiliency to the crisis. Italian and French automakers have suffered more from the sharp drops in their home markets than their German competitors have. A further disadvantage has been their reduced engagement in the two biggest growth markets of the past several years – the US and China.

German OEMs have profited from a more globalised approach and a focus on key growth markets. In China, German premium producers increased sales in 2012 by 40% over 2011, and in the US sales were up

nearly 20%.<sup>7</sup> That has helped keep their momentum going, despite the tough situation in Europe.

### Success through variety

Another success factor was certainly expanding and updating the product portfolio. A closer look at the European new vehicle registrations in 2012 shows that while many brands lost ground compared to 2011, volume producers were generally much harder hit than premium producers. German and other premium brands were able to distance themselves from the competition, despite a shrinking market.

Certain manufacturers benefited from strength in the growing segments, like SUVs, A-segment mini cars and minivans. But even more importantly, success was due to attractive and innovative products as well as a consistent expansion of their product palette into even the smallest market niches. From 2007 to 2012 alone, German OEMs increased the number of vehicles produced in Europe by 18 completely new model series.<sup>8</sup>

The results suggest the strategy is working – their European market share increased by 6% points in the same time period.<sup>9</sup> That's a trend we expect to see continue. New models don't just offer customers new choices – they also emphasise the attractiveness of

existing series and highlight the company's innovativeness, enhancing the overall brand image.

### Capacity: looking for the right balance

Factory utilisation is another key part of the answer. In Europe over-capacity is a serious structural problem. A PwC Autofacts Analysis from 2012 showed that 13 different European automobile factories with a minimum capacity of 100,000 vehicles per Europe were operating below 50% utilisation – far lower than the normal profitability threshold of 75-80%.<sup>10</sup> That represents approximately two million units of excess capacity and significantly negatively impacted the cost structure of the affected automotive producers.

The number of factories operating at below 50% utilisation went down to 9 in 2013. And while the names on the list changed, some plants have been facing issues for years. And even if pent-up demand pushes healthy sales in the future, there's no escaping the fact that Europe – especially Western Europe – is a saturated market. European production capacity should be adjusted accordingly.

Some European automotive producers have pushed through factory closures – with expected reactions from employees and unions. Another strategy is actually shifting some production back to Europe. While that may seem counter-intuitive, it's nothing other than the classic 'build where you sell' strategy. Measures like these should have an impact. PwC Autofacts expects that by the end of the decade capacity in the remaining European automotive factories are expected to again reach the 80% level. The current over-capacity of around 5.5 million units in 2012 will diminish 35% by 2020.

6 European Automotive Manufacturers Association data; <http://www.acea.be/statistics>

7 Automotive News; FOURIN's Monthly Report on the Chinese Automotive Industry

8 PwC Autofacts 2014 Q2 Data Release

9 European Automotive Manufacturers Association data; <http://www.acea.be/statistics>

10 PwC Autofacts 2014 Q2 Data Release



# 16-17 million units

realistic long-term sales level for European Union (EU) + EFTA

## *Europe has turned the corner*

Against the odds, 2013 turned out to be a better year than expected for the European Union. Overall, EU+EFTA new car registrations for the full year fell to 12.3 million units.<sup>11</sup> But car registrations began to show signs of growth early on in the second half of the year. The pace of recovery was impressive, with registrations growing at a rate of 2.6% in Q3 and ~5.8% in Q4. Continued growth will depend on the overall economic situation continuing to improve. There are a number of indices and surveys that suggest that the situation in the Eurozone has improved.

## *For example*

The European Commission's monthly Business Climate Index suggests that the downturn has already hit its nadir. But there's still a gap between estimates of improved consumer sentiment and the actual purchase of big-ticket items like cars. If current forecasts prove accurate and the economic situation in 2014 continues to improve, automotive demand will follow. In Europe, there's significant pent-up demand that could help fuel sales. And stricter European Carbon Dioxide (CO2) emission regulations will also encourage fleet updates.

Still, a strong 2014 for the EU is by no means certain. Government austerity programmes designed to fight high debt levels could slow down growth. Additionally, the crisis in the Ukraine and sanctions against Russia could also have a dampening effect on growth. And it could take some time to see unemployment fall too, particularly in countries with structural problems. So vehicle demand won't improve radically overnight, and only when car buyers in the affected countries have more disposable income.

## *How many cars does Europe need?*

Overall, an improvement in sales of new cars and light commercial vehicles to the level of 16-17 million units seems realistic. Additional growth over the record high levels of the past isn't likely. That will be true even over the longer term. Most new car buyers, at least in Western Europe, are replacing vehicles out of the existing parc which in some countries has reached the limits of traffic and parking infrastructure. Like the US and Japan, Western Europe already has a high 'motorisation density', or proportion

*Utilisation is still a major issue in Europe, but the situation should improve by 2020.*

of cars per resident. Added to that are cultural factors that are encouraging younger consumers, particularly those living in cities, to forego (or at least postpone) purchasing a vehicle in favour of other mobility options. And demographic changes can be a factor too. In some countries like Germany and Poland, a shrinking population can have an impact on sales. We foresee a 'new normal' sales level in Europe that's higher than the current level of sales – but probably won't return to the pre-crisis high point.

<sup>11</sup> European Automotive Manufacturers Association data; <http://www.acea.be/statistics>

# +53%

anticipated growth in Chinese vehicle production, 2013-2020

## *China: engine of global automotive assembly*

After a slight increase in 2011 and healthy 7.1% growth in 2012 to 15.5 million units, China's new car sales roared ahead into the double-digits in 2013, with annual growth over 15%.<sup>12</sup> That's due in part to the re-entry of Japanese brands into the market after the territorial dispute in the second half of 2012, and to the continued growth of the working middle class. PwC Autofacts expects continued growth for the next five to seven years, albeit at increasingly moderate single-digit levels. That's despite saturation and license plate restrictions in Tier 1 cities. China's Tier 2 and Tier 3 cities still offer highly promising markets. Even if these don't grow as quickly as the government plans, automotive revenues should still increase in China – albeit at a slower rate. Given the market's impressive size, even lower levels of growth will still translate into significant unit sales.

Vehicle assembly should see a similar story. PwC Autofacts anticipates growth of 53% from 2013 through 2020 to 29.6 million light vehicles – that equates to 10.3 million additional units.<sup>13</sup> That magnitude of growth will only be possible in China, with its huge population of potential first-time car buyers. Chinese automotive producers will benefit from some of the growth, but so will Japanese and Korean OEMs, as well as European and US-based OEMs.



## *The rest of the BRICs slow down, but long-term prospects are still strong*

The other BRIC countries have contributed to the industry's growth in the past decade too, but while China surpassed expectations in 2013, Brazil, Russia and India all experienced drops in sales.

Like China, India has a huge population – and it's younger and growing faster than China's. But the country is having trouble maintaining the strong economic growth rates of the 2000's. New light vehicle sales were down 7.6% to 3.0 million units, despite attempts to jumpstart the market with all-new models, early product refreshes, and generous incentives. High financing rates, rising fuel prices, price hikes due to the devalued Rupee, and an increased overall cost of ownership can be discouraging factors for potential buyers. That has caused capacity issues for local production.

While we expect India to return to growth, the country's lower per-capital GDP levels mean the volume gains seen in China aren't likely. And

when growth does come, much of it may be in Ultra-Low-Cost-Autos segments. The challenge for automakers should be to maintain a sufficient tactical presence that can be scaled up if demand growth and purchasing power takes off.

Brazil showed strong vehicle sales growth during the crisis years – from 2005 to 2012 the market for new cars and light commercial vehicles increased by 1.6 million units to 3.6 million units. But in 2013, after a decade of rapid expansion and growth, that number leveled off, down slightly to around 3.5 million units.<sup>14</sup> Many of the same factors were at work here too, including high interest rates and increased transaction prices. A stagnant macroeconomic environment and social unrest have also discouraged consumer spending, particularly on big ticket purchases.

Though the political, social, and economic volatility are cause for short term concern, over the mid-term we still expect to see growth in both sales and assembly. Marquee events like the World Cup in 2014

<sup>12</sup> OICA, <http://www.oica.net/category/sales-statistics/>

<sup>13</sup> PwC Autofacts 2014 Q2 Data Release

<sup>14</sup> ANFAVEA (Associação Nacional dos Fabricantes de Veículos Automotores)

and the Summer Olympics in 2016 should require critical investments in infrastructure, which should improve Brazil's overall economic environment and spread to other regional markets. Over the mid-term, we anticipate strong growth happening in South America, with assembly forecast to grow 41% from 2013 to about 6.5 million light vehicles in 2020.<sup>15</sup>

Russia's automotive sales have been impacted by slow economic development, which is translating into consumer uncertainty and hesitations. And while it will continue to be an important market, we expect sales to slightly decrease in 2014. Assembly looks likely to fall below 2 million units in 2014 – a decrease of 3.9% in comparison to 2013. Nevertheless, Russia is expected to be one of the longterm growth markets. The 2.1 million light vehicles 'made in Russia' in 2012 could grow to 2.9 million by 2020. That will be supported by growing sales in other countries in Eastern Europe, in particular Turkey.<sup>16</sup> From 2013-2020 we anticipate total growth of over 40% to 5.0 million assembled units for assembly in the region.

*By the end of the decade ASEAN nations will play a big role in developing Asia's growth story.*

### *Asia Pac's other growth story*

The dominant future role of the Asia Pacific region in the global automotive market won't only be driven by China. Some of the Association of Southeast Asian Nations (ASEAN)<sup>17</sup> states in South East Asia are becoming important markets in their own right. Sales in Indonesia and Thailand in particular are accelerating. From 2007 to 2012, annual new vehicle sales in Indonesia more than doubled, to around 1.1 million units, although that number stayed steady in 2013. And in Thailand new car registrations increased by a factor of 4 to around 700,000 units, with sales in commercial vehicles up too, to around 750,000 units. That impressive growth slowed down slightly in 2013, but combined car and commercial vehicles sales still topped 1.3 million units.<sup>18</sup>

And there's still a lot room for growth. Demographics and economic growth factors look positive, and the market still has a very low motorisation density. We anticipate these markets together hit well over 4 million units by the end of the decade.

That's true for production too. It grew from 2.2 to 3.9 million units from 2007 to 2012 – and many of these additional vehicles are being exported within the region.<sup>19</sup> Production is dominated by Japanese manufacturers, who profit from an agreement with the ASEAN nations to encourage commercial cooperation.

Looking over the mid-term, we see the ASEAN nations playing a bigger role in developing Asia's growth story than India.

### *But developed Asia Pac is slowing down*

Asia's developed industrial nations with local assembly of light vehicles – Australia, South Korea and Japan – could lose 5.4% of their production from 2013 to 2020.<sup>20</sup> Especially in Japan, some of the same issues as in the EU are at play here – a high motorisation density and an aging population. Nearly one in every four Japanese consumers is over 65. And with the baby boom generation about to retire, fewer consumers should need to buy a new car for the daily commute to work.

Further, the strength of the Yen made Japanese exports expensive for several years, leading many Japanese producers to shift productions overseas to where vehicles are sold. That trend has temporarily slowed though, in response to the Yen's drop in value beginning in 2013. Japanese producers are now looking to maintain production of high-volume models back home, until overseas sales expand sufficiently to warrant localising production.

# *-6.5%*

anticipated decline in Japanese light vehicle assembly, 2013-2020

<sup>15</sup> PwC Autofacts 2014 Q2 Data Release

<sup>16</sup> PwC Autofacts 2014 Q2 Data Release

<sup>17</sup> ASEAN: Association of Southeast Asian Nations includes Indonesia, Malaysia, Philippines, Singapore, Thailand, Brunei, Burma, Cambodia, Laos, Vietnam

<sup>18</sup> AAF (ASEAN Automotive Federation)

<sup>19</sup> PwC Autofacts 2014 Q2 Data Release

<sup>20</sup> PwC Autofacts 2014 Q2 Data Release



### While North America has sped back up

The sales environment in North America continues to be a positive story with a solid 2013 in the books and a positive 2014 forecasted for the region.

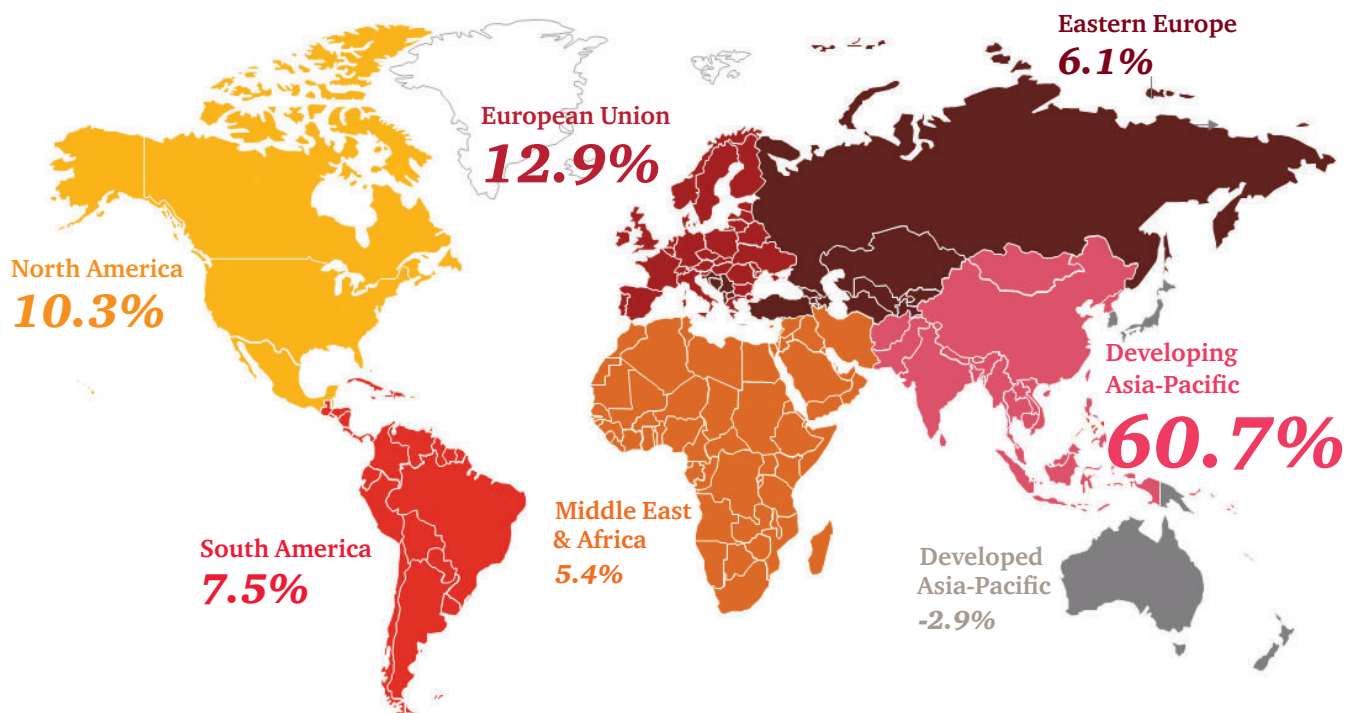
Sales continue to be driven by the US automotive market, which is back with a vengeance. In 2009, sales of new cars and light commercial vehicles plunged down to 10.4 million units.<sup>21</sup> Two major domestic manufacturers declared bankruptcy and many factories closed their doors. But by 2012, sales were back up to 14.4 million units. And in 2013, they gained another million, up to 15.4 million units. With the US economy finally expected to grow above a 3% pace, the major lingering issue over the sales recovery should ease, resulting in a forecasted sales topline of 16.2 million light vehicles for the US.<sup>22</sup>

That's partly because of the aging fleet on US's streets. With the average car 11-12 years old, it has reached a historic high point. And inexpensive financing is helping too, although there are signs that rates may go up soon. Sales of pick-up trucks are helped by two additional factors. One is fuel prices, which are starting to fall again. The other is improvement in real estate construction which could help sales.

There are a few reasons for caution. The end of 2013 saw an increase in the number of vehicles on dealer lots, which could tempt automakers to use more incentives. And fleet sales continue to be a significant source of sales volume. In our view, OEMs should be careful not to use fleet sales too aggressively, or they may risk damaging residual values.

When it comes to assembly, the picture in North America looks bright for the US and Mexico. OEMs are looking to take advantage of the growing US market and some are using it as an export base too. Momentum is shifting away from Canada, despite a decline in the Canadian dollar against the US dollar. OEMs have shown restraint when it comes to expanding their assembly footprint in the regions. The result is that even with additional plants being added to the region, PwC Autofacts forecasts an extremely healthy average utilisation rate of 90%.<sup>23</sup>

Figure 1: Share of production growth by region  
2013-2020



Source: PwC Autofacts 2014 Q2 Data Release

<sup>21</sup> Automotive News  
<sup>22</sup> PwC Autofacts Analysis  
<sup>23</sup> PwC Autofacts 2014 Q2 Data Release

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# Brands

## Marketing from the heart

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There's no shortage of competition in the automotive industry. And product differentiation keeps getting more difficult, with the differences between premium and volume segments and between producers shrinking. So brands make the difference. They're the focal point for creating an emotional bond with consumers and the surest way to stand out from the competition.

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### *Appealing to the heart and the mind*

The choice of a new vehicle includes many factors. Some appeal to reason – comparable features, available options, test results, crash statistics. But emotional considerations are important too, from how the vehicle makes a prospective buyer feel to its image. Vehicle makers should engage both the heart and the mind of their customers – and that's not always easy. What makes a particular vehicle distinctive? How do you create an emotional connection with potential buyers?

Automotive OEMs are facing new market conditions. While premium automakers used to set their vehicles apart with technical innovation that justified higher prices, that gap has closed significantly in recent years. Suppliers have become important innovation partners – they're now responsible for replace by over 60% of the value added from technical

developments. We discuss the cooperation between OEMs and suppliers in more detail later in this paper. Innovations that aren't driven by OEMs in-house spread across the entire market far more quickly. That blurs the boundaries between the premium and volume segments and makes it more difficult to differentiate a vehicle on the basis of superior technology.

So how can premium automakers defend and enhance their market position? And what can volume producers learn from their strategies?

In recent years premium producers have increased revenues by selling more vehicles to new customers in global growth markets. But they're finding new ways to appeal to customers in saturated developed markets too. For every niche, there's a customised product – a goal that isn't just filled on the factory floor.

*Automakers looking to succeed with a broad product portfolio should tailor their approaches to find just the right customers for each niche, rather than overwhelming consumers with too many different options.*



When you look across the whole industry, though, there's a danger that consumers may become overwhelmed by too many choices. Based on the current plans of automotive OEMs, PwC Autofacts anticipates that in Europe alone, 230 different models will be on the market by 2019. In 2012 that number was just 190.<sup>24</sup> But research has shown that customers see increased variety as making their purchasing decisions more difficult. In the automotive industry, that's especially true for respondents with higher levels of disposable income, where the range of choices is far greater.

### *Consumers' choices are expanding rapidly:*

**190** models for sale in Europe in 2012



**230** models for sale in Europe in 2019



### *The new pragmatism*

The last five years have left their mark on consumers. Real-estate, financial, debt, economic, and currency crises – the exception has become the norm in many parts of the world. When you speak to consumers about their perceptions of premium and personal luxury, a new tone is apparent. Wasteful luxury is passé. Instead, words like value, quality and substance fill the conversation. Customers want to buy performance and value. Premium isn't just the same thing, but more expensive. A new down-to-earth perspective is apparent and customers are only willing to accept a higher margin for products they deem to be worth the money. Rather than asking themselves, "Can I afford it?" premium customers are now more likely to say "Do I think it's worth the money?". That's true even in China, the country where D-segment premium limousines have had their strongest sales.<sup>25</sup> Bigger and more expensive is no longer automatically viewed as better.

The golden age of marketing, where stylish ads are enough to invoke a desire for the product and ensure high margins, seems to be at an end. Premium customers are searching for authenticity and real value – be it rational or emotional. Their expectations are high. They want a great total experience – that's based on the product, supported by service, and starts with living the brand.

### *The product has to be a solid starting point*

Cars still have their own special fascination. That has its roots in a quality product. In conversations with consumers in Germany, the US and China, leather was frequently mentioned as part of their perception of a premium experience. But is it really just leather they mean? The natural material stands in as symbol for consumers' desire for high-quality craftsmanship, a rich tactile experience, and a feeling of treating themselves. The sensory experience has to work as soon as someone sits down in the vehicle. It's an almost instinctive reaction to good design and an experience of quality that lingers long after the ride is over.

Good design can help volume producers improve the driver and passenger experience too. Less expensive materials can still provide an overall impression of comfort or luxury, if they're well-used.

<sup>24</sup> PwC Autofacts 2014 Q2 Data Release

<sup>25</sup> FOURIN's Monthly Report on the Chinese Automotive Industry



## **Outstanding service and strong brands are equally essential**

The product is always the starting point. But to truly stand out from the competition, strong service offerings and a brand that resonates with consumers are also essential. Most consumers describe their own experience of ‘premium’ as being perfectly understood and their needs anticipated. And with consumer-to-consumer communication becoming increasingly more important, personal anecdotes about stellar service are worth their weight in gold. Often they’re based on small gestures that show the customer is viewed as an individual, and valued. Such interactions with customers can’t just be bought – they’re based on the instincts and emotional intelligence of the staff who deliver the experience.

Lu works in marketing for an automotive company in Peking. She shared her personal experience of outstanding service at a 5-star hotel in Hawaii. On the morning she arrived, she had a blueberry muffin and coffee for breakfast. The day of her departure she needed to leave very early. She heard a knock at the door and found a hotel employee had brought her coffee and a blueberry muffin. Lu’s muffin is a great example of how sensitivity and empathy can lead to a small surprise that makes a big impression.

The automotive industry has already established a high level of service – but often it’s the vehicle and not its owner that’s the focus. So how can companies make a positive impression on customers during the service process? Good quality repairs and maintenance don’t exactly sound like the stuff that consumer dreams are made of. And yet – every contact with the customer is another chance to build a relationship. The service business can move from a solid revenue stream to a brand building factor.

But it’s not easy to achieve service excellence. It needs to be ‘produced’ again and again, every day, during every customer interaction and without sign of fatigue. And OEMs that rely on their dealer network for service may have trouble making sure that service is delivered with real passion. Dealers are under increasing pressure, particularly in established markets, with sales margins for new vehicles slim to non-existent. So there’s not much room to design a premium service experience. But with such a critical connection to profitability, OEMs should drive a service orientation. That’s particularly important in the premium segment, but the same principles apply to volume producers too.

And even when OEMs succeed in partnering effectively with their dealer network, another challenge is lurking: it’s difficult to scale service. Too many processes and procedures can actually hinder outstanding service, which

often happened outside of the norm. Its real root is in the quality of your people, who should have an extra portion of empathy and take a creative approach.

That doesn’t mean you should trust everything to the instincts of your staff. Strong internal processes and clear structures create the framework for good service. And a savvy use of new technology can help bring the ‘wow’ factor. In this digital age, new technology and a clever use of data can enhance customer interactions and help deliver good service above and beyond the people factor.

In the future, service design in all its aspects can need as much attention as product design. And each OEM can need its own vision of how to create an unmistakable experience. And while that may be especially true for premium automakers, the same principals apply in volume segments too.



## **to achieving service excellence:**



**high-quality people with an extra portion of empathy and a creative approach**



**strong internal process and clear structures**



**a savvy use of new technology**

## ***Making the brand an emotional experience***

Premium automakers should ‘produce’ a strong product and outstanding service – but that’s still not enough to establish a clear position in the segment. The brand itself is the critical final element. That means giving customers a feeling of making the best choice of coming home. Options and features can support the connection – for example, by letting the headlights stay on for a few extra seconds after the car is locked, to help light the way to the front door. But how can brands say ‘premium’? Sensitivity and empathy are key.

And that’s not just true for premium OEMs. Volume producers can also benefit from a consistent brand positioning. But beware of trying too hard. Consumers are skilled at detecting overkill. Many are also experienced at reading and taking apart advertisements and marketing materials – but luckily playing around with clichés can be a fun part of the brand experience too.

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### ***Good taste takes time***

The biggest automotive market in the world, China, is just beginning to develop a relationship with brands. More customers are first purchasers, and most brands haven’t yet been around long enough to become a family tradition or part of a regional identity. Consumers are more spontaneous and less loyal to individual brands; but here, too, a disciplined emphasis on communicating the brand and ensuring a quality experience will pay off in the long run. And automakers can learn from other companies offering a premium experience in the region, be it consumer products or luxury hotel chains.

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## ***My brand experience – a matter of interpretation***

Some premium customers are so experienced with brands, products and consumption in general that they take active steps to create their own brand experience. For example, Alexander, a luxury watch salesman and entrepreneur in San Francisco says that for some products, he’d go directly to New York City, where some premium brands have flagship stores. And while flying to another city may be an extreme example, most consumers create things like origins, heritage and authenticity in their interactions with brands. Personal interpretations of a brand make the difference in how it emotionally resonates with consumers.

In the automotive world, flagship stores and museums are booming. These give consumers the opportunity to interact with the brand above and beyond a vehicle purchase or service transaction. Each OEM should consider how to use these kinds of tools to emotionally charge their brand, whether that’s the chance for overseas buyers to pick up their new car in Germany and drive it through the Alps, the opportunity to tour the factory where their car was built, or a visit to a jazz concert or family-friendly event at the brand’s flagship location. These experiences connect emotions – excitement, enthusiasm, curiosity, surprise, delight – with the brand at a visceral level. The idea isn’t new to the automotive industry – retailers and even film studios have long been creating brand ‘experiences’ too, with notable success.

## ***Brands tell stories – their own and that of their buyers***

What do premium customers value in premium brands? Or for that matter, what do any customers value in the brands they buy? Why are they so important?

Products are more than just a bundling of functional features. They’re part of our self-experience and external presentation, of our identity. They tell a story about us. For premium automakers, it’s important to find new, exciting ways to tell their own story with excitement, emotion, surprise and delight. No-one wants to be the hero of a boring story. And in a world filled with dry lists of pros and cons, genuine emotion and courage gestures can make the difference. Certainly better fuel efficiency or a larger trunk can be persuasive arguments for a particular vehicle. But so can a particular lifestyle. The courage to feel is leading to a new era of emotional marketing, where brands resonate strongly without any concrete reference to the product or its particular features. That’s especially important now, with technical differences between different OEMs becoming increasingly slimmer.

And again, that emotional connection isn’t just important in the premium segment. Consumers face a wide range of choices in the volume segment too. So while volume producers may want to tell a somewhat different story with their brand, they should create a bond with customers too.

That points to some important lessons for an up-to-date brand strategy. Premium consumers are both rationally and emotionally demanding. Automakers should offer both reasonable arguments and emotional connections to build their brands. Products, services and brands all need to work together to support purchase decisions.

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# Production

## Complex, flexible, networked

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Volatile markets and customers with changing requirements are driving an increase in tailor made vehicles. Tomorrow's market leaders will need to manage complexity well. Flexible structures and new production paradigms are showing the way to a networked future.

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Build where you sell. That's been the strategic direction of automotive companies in recent years, as they've moved parts of production to growth markets or built up large-scale capacity in growth markets, and suppliers have followed. With AsiaPacific continuing to dominate growth there's no likely end to the trend in sight. Of the 102 new factories planned from 2013 to 2020, 67 will be located in Asia.<sup>26</sup>

### **Finding the right assembly location**

New production capacity isn't always going to satisfy just the domestic market. For example, India's automotive exports have increased significantly between 2008 and 2012, to around 2 million units. But 1.5 million of these were exported to OECD countries.<sup>27</sup> That reflects a trend towards locating assembly in 'best cost countries' and using them as an export base for neighbors – and sometimes even further afield. One US-based OEM has already announced plans to expand capacity in India and China for export to Europe, among other places. It's already happened in other

industries. So will China become the new global production hub for the automotive industry?

Not necessarily. Foreign OEMs are hesitant about exporting from China, and Chinese producers have a way to go to match global standards. But the massive capacity investments in China may increase pressure to export at least some of production over the next five to ten years. One option might be producing individual power train modules in China as a regional hub for assembly elsewhere in Asia.

Talent constraints will also limit the extent to which 'best cost countries' can take over production. Some companies are even sending production back to sales markets, especially Europe – still on the "build where you sell" principle. Rising transportation costs and the possibility of stricter emissions regulation will have an impact on future production decisions too. But the most important factor will be developing strategies to improve capacity utilisation while remaining flexible enough to react quickly to shifts in demand levels.

It's notoriously difficult to adjust capacity quickly, and utilisation often depends on external factors outside of automakers, control. We see volatility in a few key markets becoming a long-term challenge for production networks. Supply chain flexibility is becoming a key success factor. One strategy involves using temporary workers as part of the workforce. That can help companies increase or decrease the workforce by 20-30%, as needed.<sup>28</sup> In some higher wage countries, workforce flexibility can get quite complicated, with overtime, temporary contracts, flex time accounts and flexible working hours also playing a role. To maintain flexibility, it's important to have an accurate picture of which costs are variable and can be scaled and how different utilisation levels will impact profitability.

It's important to keep a close watch on market forecasts too. When these change, plans may need to be updated accordingly.

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<sup>26</sup> PwC Autofacts 2014 Q2 Data Release  
<sup>27</sup> UN Comtrade Database, PwC Analysis  
<sup>28</sup> Industry expert estimate



### **Customisation: customers' delight, production's bane**

Automotive producers are offering more ways to customise your vehicle. They want to give consumer the feeling of having a custom-tailored product, rather than a mass-produced one. And different standard options for different markets also increase complexity. From a sales point of view, the ability to customise options and features is a clear advantage. But for product and supply chains it creates significantly challenges.

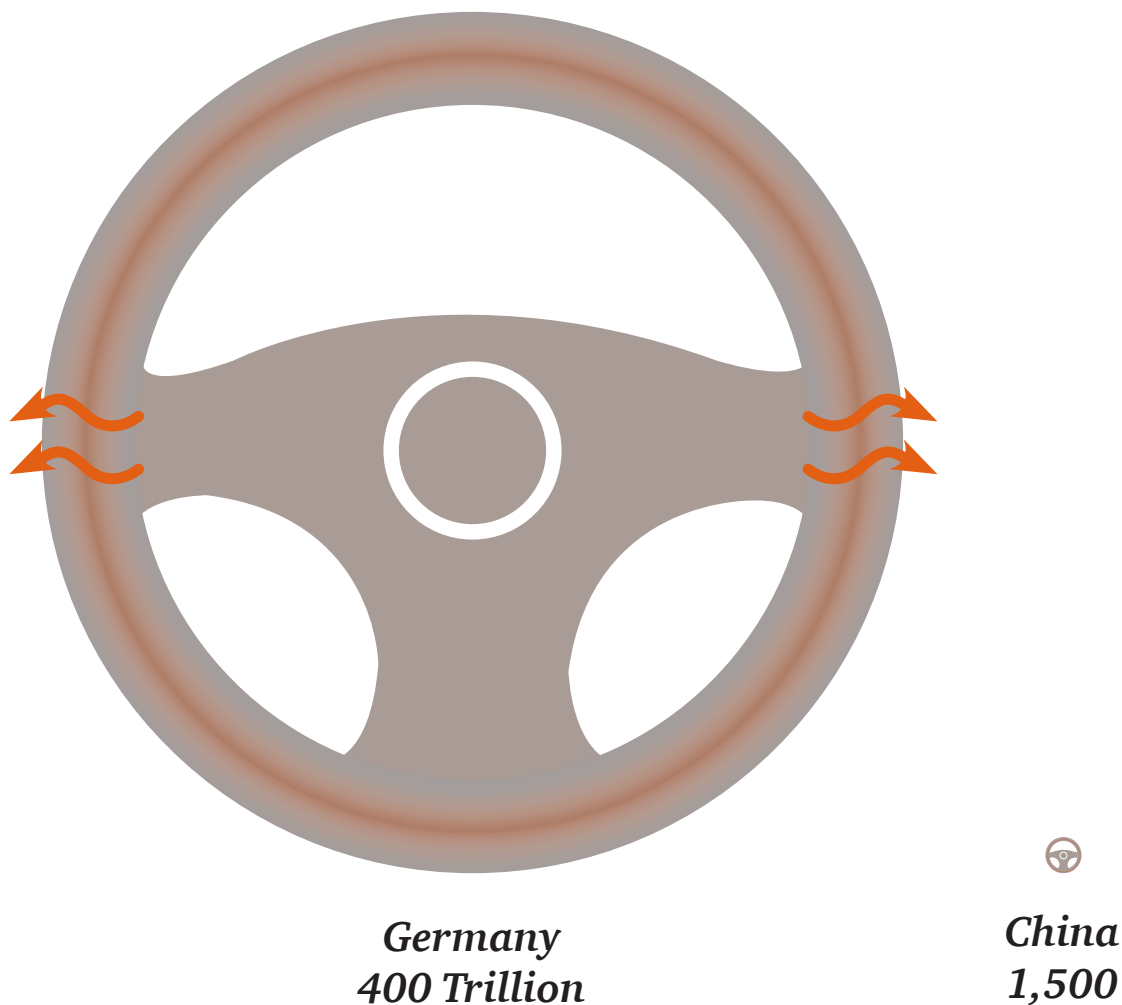
The level of complexity varies widely by market and vehicle type. For example, a typical German mid-class model offers customers 400 trillion possible variations, while just 1500 variants are offered for comparable vehicle models in the Chinese market. For premium vehicles, the possible combinations are exponentially higher in both markets.

Reductions in complexity aren't likely. Companies should master it, and that's especially true for premium producers.

While Chinese consumers are currently content to buy a car fully loaded, or at least choose bundled packages of options, there are varying opinions on how their tastes may develop. Some observers expect to see the level of complexity increase there too. Automakers should keep a sharp eye on local customer expectations in order to anticipate possible impacts on production.

**Figure 2: The level of complexity varies widely by market and vehicle type**

A typical German mid-class model offers customers 400 trillion possible variations, such as a heated steering wheel, while just 1,500 variants are offered for comparable vehicle models in the Chinese market



Source: PwC Analysis



### *Greater complexity = higher costs*

Production complexity can mean variations in which components are included, where they're produced, and what tools are used. And beyond that, it's necessary to design the entire process so that a customised vehicle can be assembled using a standard rigid process. Complexity can add both indirect costs resulting from lower productivity and direct costs when procurement costs go up. For example, if tools need to be switched frequently, that can slow down the production line. Parts that are only purchased in small volumes generally cost more. Offering more options may mean using a larger number of suppliers, which also adds costs. Warehousing space may need to increase. And it reduces the accuracy of production forecasting too.

Most cost analysis systems aren't yet able to analyse and show all of these factors with sufficient transparency. That's why many automotive companies need to go one step further. A sophisticated model for cost analysis should categorise the extent to which individual costs are sensitive to fluctuations in volumes or variants. That can help automakers get a better handle on how expanding their offerings and/or shifting locations would impact their cost structure.

### *Planning for tomorrow today*

With demand for different models and variants continually changing, automakers need flexible suppliers who are able to deliver the required modules or components reliably and on-time. And the OEMs need to be able to install the right parts and produce their own customised versions where necessary. That means flexible assembly lines, ideally those that can produce vehicles across different segments.

In addition, shorter production cycles create other challenges, like increasing the need to modify production processes. That means it's important to plan ahead for future vehicle generations and work to integrate a high level of standardisation into platforms and vehicle architecture.

*Shorter production cycles are increasing the need to plan ahead for future vehicle generations*

### **Building blocks for everything?**

It's possible to cope with demand volatility and shorter product lifecycles by looking at both product and production systems. That means designing for easier production as well as using consistent vehicle architectures. That can reduce the need to re-vamp production facilities when models are shifted or when updates and modifications are planned. The ultimate goal is to balance the individual product design with standardised components and modules. For premium producers, there's a delicate balance. Customers paying for exclusive high-end features may resent seeing parts of their premium vehicles showing up in volume platforms.

### **Standards increase flexibility**

It may seem paradoxical, but defining consistent production standards can actually increase flexibility. That's because factories which share common standards can produce different models or variants as needed, reducing the amount of down-time. To manage complexity, it's also important to develop a thorough sales and operations planning process that can show models, the modules and components they include, and plan their production accordingly. That can then be used to plan the production network. Not all industry players are consistently implementing it though. In the future, many of the executives we spoke with believe that producers should improve their IT capabilities, integrate suppliers more fully into the information flow, and better coordinate the various value chain elements as well as components of a vehicle.

### **Weaving the right network**

Nets are elastic and flexible by nature. Production networks need to be too. That means seeing production as an open process that can weave together very different influences. The entire value chain needs to combine the production network with information – ideally in real-time – from the sales process until final delivery and ideally service and after-market.

Understanding unit costs that reflect product and factory specific factors like labour costs, unit production levels, final assembly processes and product complexity is the starting point. That helps create a realistic picture of total costs for a particular vehicle in different factories around the globe and compared to the competition and helps answer questions about whether assembling in a high-wage or low-wage region makes more sense. And additional factors like regional customer preferences, costs and infrastructure need to be taken into account too.

Companies need to model all of these factors across a vehicle's life cycle and with all the relevant revenue and profit information. Reviewing these

together for the entire product portfolio can also help drive functional strategy decisions, like what type of innovation to invest in and whether/where additional production is needed.

### **Keys to success**

Successful companies already have a strong sales and production presence in growth markets and have made major strides towards developing flexible and efficient production strategies. It's clear that fully mastering the supply chain from beginning to end could play a decisive role in automakers future growth. Companies that are able to master the complex web of products, innovation, production, location and sales, stay flexible in the face of volatility, and understand and control costs, without losing sight of customer expectations, will be tomorrow's winners.



## to achieving production excellence:



comprehensive understanding of unit costs at the factory specific level



analysis of regional customer preferences, costs and infrastructure



sound modelling across the vehicle life-cycle



# Streamlined, global or innovative?

## Key strategic decisions for suppliers

Huge new markets are attracting production. Big new themes are dictating research directions. The partnership between OEMs and suppliers is in a process of transformation. Tomorrow's winners will define a clear profile and build their own position in the new landscape.

More than 60% of the value added in a vehicle is generated by the research and products of suppliers, which are delivered as individual parts, components or entire systems at the right time and in the right configuration – be it in Germany, Russia, China or the US.<sup>29</sup> Suppliers are becoming true engines of innovation, too. But how resilient are they, if another economic crisis hits?

### *Resilient – thanks to exports and innovation*

When automotive producers have a heavy weight to carry, it's often suppliers who end up with a slipped disk. Our analysis of the Global 100 suppliers shows that revenues were up in 2012 – but just barely (1%).<sup>30</sup> In many regions, including powerhouse Japan, supplier revenues were down

(see Figure 3). One exception was Europe, where suppliers grew 3.6% despite a slowdown in local sales. That strong result was largely powered by a strong showing from German suppliers, whose revenues grew a healthy 12.3% in comparison to the previous year. The only major player with a stronger result was South Korea, where suppliers' revenues grew an impressive 19.7%.

Figure 3: Sales and EBITDA performance of auto suppliers by region

	Sales**				EBITDA**					EBITDA as % of Sales 2011	EBITDA as % of Sales 2012
	Total 2011 (\$B)	Total 2012 (\$B)	Δ%	Count	Avg. 2012	Total 2011 (\$B)	Total 2012 (\$B)	Δ%	Avg. 2012 (\$B)		
<b>Global 100*</b>	661	668	1.0%	83	8	70	69	-0.6%	0.8	10.6%	10.4%
<b>Brazil</b>	4	4	-7.3%	8	0.4	0	0	-28.5%	0	12.7%	9.8%
<b>China</b>	32	31	-3.6%	56	0.5	4	3	-19.3%	0.1	12.1%	10.1%
<b>Europe</b>	297	307	3.6%	69	4.5	34	34	-0.2%	0.5	11.6%	11.2%
<b>India</b>	22	24	5.7%	44	0.5	2	3	5.0%	0.1	10.7%	10.6%
<b>Japan</b>	208	196	-5.6%	34	5.8	20	19	-5.3%	0.6	9.7%	9.8%
<b>North America</b>	236	238	0.9%	71	3.4	25	25	0.9%	0.4	10.5%	10.5%
<b>S. Korea</b>	51	61	19.7%	46	1.3	5	7	22.9%	0.1	10.4%	10.7%

\*Global 100 Companies Also Counted in Regional Numbers

\*\*Financial figures include revenue resulting from automotive sales only

Source: CapIQ, Publicly available financial data, PwC Analysis

<sup>29</sup> PwC Analysis

<sup>30</sup> PwC, Consolidation in the global automotive supply industry, 2013.

## *Suppliers are already leading innovation in key areas like driver assistance systems*

We attribute South Korea's strong numbers to a major manufacturer's success in marketing its vehicles globally and bringing suppliers along with it. But what about German suppliers? What factors are driving their success?

Certainly the strong performance of German OEMs overseas has helped suppliers develop strength in exports. While German suppliers have also started to build locally in other regions, they're still focused more on growth at home. But exports from Germany and Europe more generally have climbed in recent years.

The other is the need for novelty. Automotive producers have expanded their use of higher-end components in volume segments. That's created significant pressure to keep innovating, particularly for premium producers. Higher expectations around safety, environmental impact, and fuel efficiency are driving new research too. And that's good news for suppliers. Our forecasts suggest that German suppliers alone will supply 160 billion euros in components in 2019.<sup>31</sup> That's an increase of 37 billion euros over 2012.

The market potential is there, for those ready to use it. Many suppliers have already shown their innovative strength. Energy recovery systems and new production techniques have been developed mostly by creative suppliers. And they're also leading the trend towards more and better driver assistance systems.

### *Capacity should better match sales*

But there are challenges looming too, like products, processes and markets that change faster and more drastically than expected. Some analysts believe that the automotive industry as a whole will change more in the next ten years than it has in the previous 100. And increasing volatility is making it difficult to plan revenues and results.

European suppliers also need to cope with lower sales levels in Europe for the foreseeable future. While they've been able to compensate through increased exports, it's not clear how long that trend can be sustained. As OEMs move towards more local production, suppliers should adjust

their own capacity accordingly. Only suppliers who can serve global customers or deliver truly innovative solutions will be able to continue to grow.

Suppliers should cope with OEMs looking to consolidate purchases across platforms, rather than series. And those platforms are significantly more diverse than before, and being built in more locations. That creates major challenges for suppliers. So should they really focus on innovation? Wouldn't it make better strategic sense to focus on improving the product palette and cost structure? In the short term, the answer may be yes. But there's a serious danger of missing the next important technological advance and sacrificing tomorrow's revenues in favor of today's.

<sup>31</sup> PwC, "How to stay No.1! – Impulse fuer die zentralen Herausforderungen in der Automobilindustrie", 2013.  
Note: Effects of inflation, increased value of products as well as decreases in raw material cost and other impacts are considered proportionally.

### So what's the right strategy?

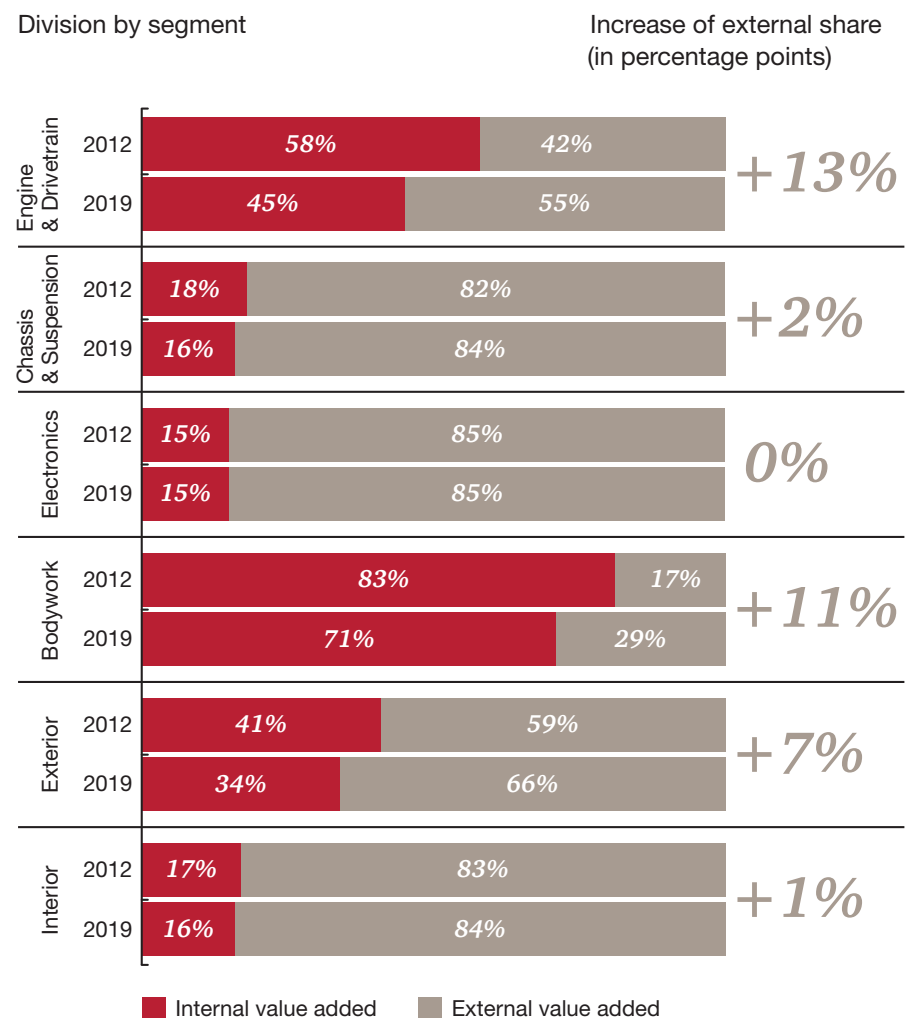
To answer, suppliers should start by asking themselves three key questions. What's my position in the global supply network and how are my competitors placed? How much value added is the OEM providing in my segment and how will the producer market it? Which products can I offer competitively and how can I differentiate them?

The answer to the first question now often involves a more open approach to cooperation with other Tier 1 and Tier 2 suppliers. In the past, supplier networks were often organised hierarchically. But managing global large scale order and the challenges posed by a highly integrated and global functioning supply chain mean re-thinking. In the future, OEMs and the larger suppliers will look to networks of specialised, focused technology experts. Many suppliers have already started working together in these types of fully-integrated networks. That's not to say that every supplier is positioned equally – certainly the amount of value-added, customer portfolio, market presence and technological strength makes a difference too.

The answer to the second question isn't always clear-cut. Certainly OEMs will continue looking to suppliers for innovation. Many of the classic vehicle elements like the chassis, interior and electronics and electronic components are already predominantly designed and produced by suppliers (see Figure 4). As complexity increases, the greater number of models and variations will probably lead to greater participation

by suppliers in areas that are still mostly seen as OEM core competencies – the body-in-white and powertrain. Producers are likely to concentrate more on integrating the overall vehicle, developing mobility services and enhancing their brand. Still, while the balance along the value chain will shift, the change will be gradual, at least when it comes to vehicles with traditional combustion engines.

Figure 4: Division of value added by OEMs and suppliers



Source: PwC Component Market Model



### *The battle for tomorrow's powertrain*

When you take a look at tomorrow's electric vehicles, though, the shift in the division of responsibility for value creation is likely to be far more dramatic. The more electronics are integrated into a vehicle, the greater portion of its value-add is coming from areas outside the core competence of automotive producers. That means electric mobility will need to be bought, or OEMs will need to build new areas of competence. For electric vehicles, batteries and related systems take on the importance of today's engines, and electronic components add to the potential threat facing OEMs.

The electrification of the powertrain could radically disrupt the traditional automotive value chain – and that's without the potential entry of new players from other industries like IT or telecommunications.

So suppliers need to start looking ahead. While it may take 15-20 years before the classic combustion engine gets displaced, first movers may have a significant advantage once the shift takes place.

### *Exploring new technologies*

There's still one more question to answer – what products can I use to position myself in tomorrow's marketplace? Disruptive innovations nearly always begin as niche products for a relatively small circle of customers. Think of the typewriter or the electric lamp. As they gain acceptance, these niche products can completely displace the older solutions of major players. In many cases, such disruptive innovations have radically re-written the history of their sectors.

To avoid being innovated out of relevance, all suppliers – even those currently leading their markets – need to continually look ahead to future developments. New powertrains, new materials, new vehicle concepts or architectures – all of these trends are already changing the structure of the supplier industry. That's a big opportunity for suppliers –, but a risk too. New market entrants could threaten growth. The innovation playing field in automotive has gotten bigger than ever – and suppliers need to find their place on it.

Take the automotive chassis. There will certainly be one, no matter which type of powertrain takes the lead – but the shape, material, and even the method of construction may change dramatically. With fuel efficiency standards looming, light-weighting will certainly continue to be of major importance.

*To avoid being innovated out of relevance, suppliers should look ahead to future developments in areas like new powertrains, new materials and new vehicle concepts or architecture*

## It's hard to build light

Sustainable light-weighting will require a holistic look at materials, construction and production techniques. Conflicting goals for comfort and economy should be considered, and innovative approaches developed to create improved solutions. Suppliers should partner with OEMs to develop solutions that work across a wide range of niche models and use flexible construction techniques – for example, taking a modular approach can help reduce complexity.

Suppliers should be able to balance costs, volume, weight and functionality to offer the best solution for OEMs. And with global platforms ever more the norm, they'll need to be able to deliver consistent quality around the globe too.

## Playing to your strengths

There's a lot of buzz around the use of new materials in the automotive industry. Aluminium, magnesium, plastic, carbon fibre, hybrids – they're all under discussion. And some are already being used – albeit primarily in niche vehicles or particular regions. That means some suppliers and OEMs are already gathering valuable experience in working with the new materials, sometimes using new processing technologies like bonding, hydroforming or laser welding. The new experts are coming.

Opportunities abound, but new solutions and innovation will be the name of the game. That leaves just one last question: what to do first? To answer that question, you need to really understand your company's strengths and play to them.

Cost leaders are streamlined, flexible, and invest more than peers in

Figure 5: Cost-benefit analysis in lightweight construction

Index: Steel = 100

	Mass needed for identical functionality	Cost	Application in automotive construction
Conventional steel	<b>100</b>	<b>100</b>	Structural elements that require high structural strength and good formability, e.g. side bumpers
Plastic	<b>75</b>	<b>100</b>	External and internal components that don't require high resistance, e.g. instrument panel
Hot-formed steel	<b>75</b>	<b>115</b>	Structural elements that require higher structural strength, e.g. B-pillars
Aluminium	<b>60</b>	<b>130</b>	Structural and functional elements, e.g. various beams, frame
Magnesium	<b>50</b>	<b>360</b>	Structural and functional elements, e.g. tailgate, gear casing
Carbon-fibre reinforced plastics	<b>30</b>	<b>570</b>	Structural elements that require extremely high resistance, e.g. tailgate, engine hood, chassis

Source: PwC Analysis, VW Group, Bavarian Academy of Sciences and Humanities

efficient production techniques and continual improvement to increase productivity even in high wage countries. Specialists place their bets on technical innovation, where up-front investments can lead to longer-term competitive advantage. And global players need to invest not just money, but also human resources and management capacity to build the right locations in the right markets and keep up with tax, customs and other regulations. That means a strong controlling function and a willingness to adjust strategy as necessary.

It's not enough to pick the most attractive option. Each strategy plays to different skills, so you need to make sure your organisation can back up your choices. For specialists who rely on their ability to develop new technologies a strong R&D function is mandatory. Cost leaders need to be outstanding in other operational areas.

That's not to say that there are only single answers. Certainly it's possible to stress more than one element of this trinity. Tomorrow's suppliers should develop their own individual strategy along this matrix.

# Corporate sustainability

Global, green, good

Huge new markets are attracting production. Big new themes are dictating research directions. The partnership between OEMs and suppliers is in a process of transformation. Tomorrow's winners will define a clear profile and build their own position in the new landscape.

"I can't change things by myself" says Alin, a hairdresser who commutes around 50 km each day from Tegernsee to Munich. That sums up what makes sustainability so complex. Sustainable solutions are most effective when they become mass phenomenon with everyone on the same page. The entire automotive industry from OEMs to suppliers should work together to meet the expectations of different external stakeholders.

Consumers wield significant influence through their purchasing decisions – money talks. That's the same reason that investors and lenders can make their wishes heard easily. And since changes that require significant financial investments and additional costs don't always happen through self-regulation, non-governmental organisations (NGOs) and regulators are also playing a major role. All these stakeholders are looking in the same direction – a more sustainable future. That's going to stay on the industry's agenda. But why is sustainability so important for the industry?

## ***The automotive industry is resource-intensive***

There's no disputing that cars use natural resources. But production plays a far more important role than is often acknowledged. For example, before an average German mid-sized vehicle has been driven its first kilometer on the road, 86% of the total resources it will use during its lifetime have already gone into its production.<sup>31</sup> Extracting and/or processing the raw materials used in a car make up by far the biggest chunk of its environmental footprint. While the exact

percentages may vary elsewhere, the importance of considering natural resource use across a vehicle's total life cycle does not.

Currently, fuel efficiency dominates much of the public discussion. And reducing fuel usage is important. But production and the value chain need to come much more sharply into focus too. OEMs and suppliers alike should work together to reduce this environmental footprint. Light-weighting and innovating around efficiency deserve a permanent place on the industry's agenda.

Split of total vehicle resource use for an average German mid-sized vehicle:



**86%**

during the production process  
(including extraction and  
processing of raw materials)

**14%**

during use (including fuel)

Source: PwC Analysis, Wuppertal Institute for Climate, Environment and Energy

<sup>31</sup> PwC Analysis. In order to estimate the actual resource usage (TMR=total material requirement) over an average vehicle's entire life cycle, we took the materials listed in the automotive producers' environmental certifications and analysed these according to the standard material input factors calculated by the Wuppertal Institute for Climate, Environment and Energy.



## ***Responsibility and profits aren't mutually exclusive***

Consumers and industry insiders alike are developing a greater sense of responsibility. Today's consumers can't avoid thinking greener. But they're placing their emphasis on sustainability rather than simply protecting the environment. It's an important distinction. Re-thinking the entire system to create a more sustainable one that can continue to produce tomorrow is an entirely different starting point than trying to avoid specific actions to reduce a negative impact. And it may lead to much greater efficiencies, too.

The word sustainability conveys an openness to economic interests and technological progress as drivers of a secure future. And while environmental aspects like oil usage or carbon dioxide (CO<sub>2</sub>) emissions may be used interchangeable with sustainability in common conversation, they're only one pillar of a sustainable business. A truly future-safe system conserves all resources, so it can continue to function. So other issues like the ethical context of rare earth minerals or the working conditions at suppliers become more important too.

Corporate sustainability means operating responsibly on an economic, environmental and social level. Many automotive companies are already committed. Concrete goals to reduce fuel usage, carbon

dioxide emissions and raw materials usage in production are setting the path. But is sustainability really becoming an integral part of the industry's value system? And are there areas where companies need to pay closer attention?

## ***Sustainable premium shouldn't be a contradiction in terms***

In the EU, ambitious CO<sub>2</sub> emission targets are posing a big challenge for automotive producers. Those that don't meet them may eventually have to pay hefty fines. At about 7,500 euros a vehicle starting in 2025, they could threaten even today's most profitable premium producers.<sup>32</sup> That's because while premium carmakers are strong at developing innovation, their product palette is bigger and heavier than it ideally would be. Premium is currently synonymous with a fast, luxury body and a bigger engine. So is premium a barrier to leading on sustainability? Balancing the results of premium nameplates with other vehicles, encouraging strong sales of smaller vehicles and actively building the electric fleet can help in the short-term – but in the long run, premium producers should develop a clear strategy.

Certainly a look at other segments suggests that premium customers are in fact exactly the consumers who are most concerned about sustainability. Many are willing to pay more for regionally grown produce, for example.

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**We expect to see consumers demand more assurance that companies are operating in an environmentally sustainable way and adhering to human rights standards. Automotive companies need to be prepared to respond. That's a moral obligation – but it's just as much economic necessity.**

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## ***Supply chain on the radar***

Do good and talk about it. To get the most benefit from progress your organisation makes in improving sustainability you need to effectively spread the word about your success. That's as true for the automotive industry as it is for any other sector. Just documenting emissions per kilometer or the environmental impact of your own factories isn't enough. Cars are complex products that are co-created by OEMs and suppliers – so only documenting your own part of the value chain isn't sufficient. To persuasively argue the sustainability quotient of a vehicle, you should make sure the entire supply chain is transparent and the impact can be documented and audited.

Sustainability reporting creates new challenges for the industry each year and has become an agent for change in its own right, especially when it comes to the supply chain. While many standards are still voluntary, they can

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32 PwC Scenario calculation; European Parliament ([http://www.europarl.europa.eu/meetdocs/2009\\_2014/documents/tran/pa/924/924866/924866de.pdf](http://www.europarl.europa.eu/meetdocs/2009_2014/documents/tran/pa/924/924866/924866de.pdf))

be extremely time-consuming to meet. The Carbon Disclosure Project now asks for the CO2 emissions of the entire supply chain. And that's not just what type of emissions, but the actual numbers and a confirmation of how they were verified. Teamwork across the supply chain is also part of the questionnaire.

The Global Reporting Initiative (GRI) will publish its new, stricter G4 standards starting in 2015. These voluntary guidelines require companies to monitor supply chain partners across the categories economics, environment and society. And companies should report on how their supply chain structure functions, for example, where suppliers are located, how they're selected, how relationships are developed, etc. Management also needs to report on how they monitor supplier performance and what performance indicators and strategies they're using to decrease risks and increase opportunities in the supply chain.

### ***Making companies accountable***

In addition to concerns about the environment, social and human rights issues are coming more into focus. There's now a greater emphasis on understanding the impact that mineral extraction and production processes have on people. Sometimes that's led to regulation. In the US, section 1502 of the Dodd-Frank Act requires all SEC-listed companies to verify that they're not using certain minerals (also known as 'conflict minerals') that have contributed directly or indirectly to financing weapons for groups in the Democratic Republic of Congo or neighboring areas. Similar regulation is under consideration in the EU as well.

***The push for accountability and transparency is increasing steadily, be it voluntary, regulatory, or in response to consumer expectations. Understanding exactly where each part comes from in your own product is an immense challenge—but it's one that has to be mastered if a company wants to be sustainable.***

The push for accountability and transparency is increasing steadily, be it voluntary, regulatory, or in response to consumer expectations. Consider that a single car is composed of 20,000–40,000 separate parts (depending on how you define a single part) that are purchased from thousands of suppliers. OEM suppliers purchase from Tier 1 suppliers who purchase from Tier 2 suppliers who in turn buy from Tier 3 suppliers. Understanding exactly where each part comes from in your own product is an immense challenge—but it's one that has to be mastered if a company wants to be sustainable.

### ***Knowledge can help reduce risk***

Environmental and social considerations are far from the only reasons to take a close look at risk management in the supply chain. In a globalised world where countries, industries and companies are increasingly networked and interdependent, risks that once seemed far-off and distant may now have an impact at home. The earthquake and reactor crisis at Fukushima in Japan upset the supply chain of hundreds of companies. For example, some OEMs

had to replace ship transport with air transport to keep the assembly lines running. That raised costs – and emissions too.

While natural catastrophes can't be predicted in advance, the impact of such risks can be reduced when a company knows exactly where the parts it uses are coming from. That may sound easy, but it's far from it. By the time a new car makes it to the dealership its parts have travelled around the world and may have been produced by hundreds of different suppliers. Imagine what can happen on this long journey if soldiers or terrorists close off an important waterway, hackers manipulate a stock exchange or if a country decides to prohibit exports of needed materials. If automotive producers don't understand where parts and components are coming from, production stoppages can be the logical result. And there are other risks too, like quality control, logistical challenges, and lack of legal recourse if something goes wrong. So it's no wonder that stakeholders now expect automotive producers to gather comprehensive information about their suppliers and to improve their supply chain performance.

## ***Are you verifying that suppliers are complying with your sustainability standards?***

### ***Transparency and control of the supply chain will be the new prerequisite for success***

It's becoming standard for automotive producers to ask their suppliers to document sustainability issues and include environmental issues within their contracts. But most don't take the next step and systematically verify that suppliers are actually complying with such standards. And most don't include any sanctions for non-compliance. And while many automotive producers have a process to uncover sustainability-related supply chain risks, a systematic method to quantify and assess these risks is much rarer.

Very few automotive producers report on their supply chain performance. Given the mammoth nature of the task of documenting the entire supply

chain, driving it and evaluating its performance, OEMs and suppliers alike are looking for new structures and approaches. It's not just about publishing a persuasive report. Far more important is making the changes needed along the supply chain to secure strong, ethical future performance.

### ***Staying strong together***

In many industries, cooperation and trade organisations have already made a big impact on topics like supplier management. While individual companies may be able to improve their own position, the true impact is only achieved when bigger groups work together towards a common goal. That's starting to happen in the textile industry. The Sustainable Apparel Coalition (SAC), a cooperative effort between over 80 manufacturers, retailers and NGOs, is developing international standards to evaluate textile and shoe production. Over the long term they aim to reduce resource use and improve the conditions for workers in production countries. It remains to be seen how big an impact the SAC will have. But it's certain that the creation of these types of joint efforts can help individual companies better address complicated challenges.

The automotive industry has already gotten started. For example, the Automotive Industry Action Group (AIAG), a globally active nonprofit

organisation headquartered in the US, is working on standards, guidelines and training to help bring clarity to the complexity in the supply chain and address problems together. The AIAG has developed an international materials data system, an extensive database to keep track of what automotive parts and components are made of. These sorts of tools show that technical constraints are no longer a barrier to understanding the original of the raw materials used in a vehicle. Together, companies can get it done.

### ***More than just 'nice to have'***

Sustainability is becoming ever more important in the automotive ecosystem. While the industry's complicated global supply networks don't make it easy to guarantee sustainable operations along the entire supply chain, it should be every producer's goal. Sustainability isn't just nice to have, it's becoming a decisive success factor. Sustainability themes influence production, product strategies and branding, research and sales. They impact costs, are tracked by the capital markets, and sometimes drive regulation.

Securing future success without operating more sustainably is quite simply unthinkable.



# *Let's continue the conversation*

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## **About Autofacts®**

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DT-14-0076 v1w