

2015

# AUTOMOTIVE MANAGER

TRENDS, OPPORTUNITIES, AND SOLUTIONS ALONG THE ENTIRE VALUE CHAIN  
COVER STORY: THE TRUE VALUE OF AUTONOMOUS DRIVING



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Digitization will vastly change the automotive world. Technological innovation of products and related services will increase safety and comfort as well as the quality of touch points between client and brand. Necessary investments in software, data analytics, and other IT are already paying off – in terms of cost efficiency, higher margins, and innovative perspectives on customer loyalty.

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# FOREWORD

Dear reader,

The digital world is rapidly becoming one with the automotive world. Technological innovation will enable higher levels of safety and convenience, as cars better interface with their environments and assist their drivers. And digital services will create new and varied touch points between brands and customers.

This shift, however, also will be disruptive across the automotive industry, due to faster technology cycles, new business models around mobility, changes in the competitive landscape – and a wealth of data that needs to be put to use.

This issue of *Automotive Manager* covers some of the key opportunities arising from digitization, with a focus on how necessary investments in software, data analytics, and other IT will pay off – in terms of cost efficiency, higher margins, and innovative perspectives on customer loyalty. These developments also will keep pressure on suppliers to capitalize on changing industry requirements – and adapt their strategies and organizations accordingly.

Technological change will require rethinking many aspects of the industry: from where to get talent and capital, to improving R&D and car launches, and innovating the customer experience of retail and after-sales. But there's no putting off what needs to be done. Tomorrow's car and tomorrow's customer are already here.

Best regards,



AUGUST JOAS  
Head of the Oliver Wyman  
Automotive Practice

# CONTENTS ALONG THE ENTIRE VALUE CHAIN

## CUSTOMER



### COVER STORY: THE TRUE VALUE OF AUTONOMOUS DRIVING

Autonomous driving could offer considerable value potential and promising benefits for companies in a wide variety of industries. Players will need to anticipate the needs of end customers and the evolution of government regulations in order to offer tailor-made solutions.



### THE AUTOMOTIVE RETAIL EXPERIENCE OF THE FUTURE

Product innovation alone is no longer enough to establish a lasting competitive advantage. Innovating the customer's buying experience is now a critical differentiator.



### IMPLEMENTING BIG DATA IS THE HARDEST PART

Big data can be the success factor in improving decision-making processes. Automakers who want to maximize the power of big data need to take into account a range of factors that can make or break its sustainable and successful implementation.

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# THE TRUE VALUE OF AUTONOMOUS DRIVING

Recent innovations will make autonomous driving a reality in the foreseeable future. This disruptive technology will make fascinating new mobility features possible, while potentially providing efficiency benefits and improving safety. As governments work to provide required infrastructure and regulatory guidelines, companies from a wide variety of industry sectors – automotive, IT, insurance, logistics, and more – are positioning themselves in this new field. All of these players hope to see benefits, but to succeed they will need to know where autonomous vehicles offer real business value and what business models are best suited to tap into this potential.

Juergen Reiner  
Rouget Pletziger  
Joern Buss

The degree of automation in cars has increased steadily over the past few years. Today's most advanced systems can take over driving during a traffic jam – as long as the driver's hands are on the wheel. There is also technology that can automatically park the car with limited input from the driver or stop the car before it is involved in an accident. In the future, vehicles will be able to make lane changes and merge into traffic on their own on the highway. Automakers also have shown that they will soon have vehicles that will be able to park themselves after the driver has left the car. Fully automated chauffeur, driverless operation on highways, platooning, and highly automated driving in cities are expected to be available by 2025.

The prevailing view is that the speed of these breakthroughs is limited by regulatory constraints and liability issues more than by the underlying technologies. Within the next ten years, two advanced vehicle types are expected to be on the road:

1. Fully autonomous vehicles that circulate in closed areas, such as city centers, airports, and universities with no person behind the wheel
2. Semi-automated vehicles outfitted with features that can take control on the highway or during a traffic jam, as long as there is someone in the driver's seat

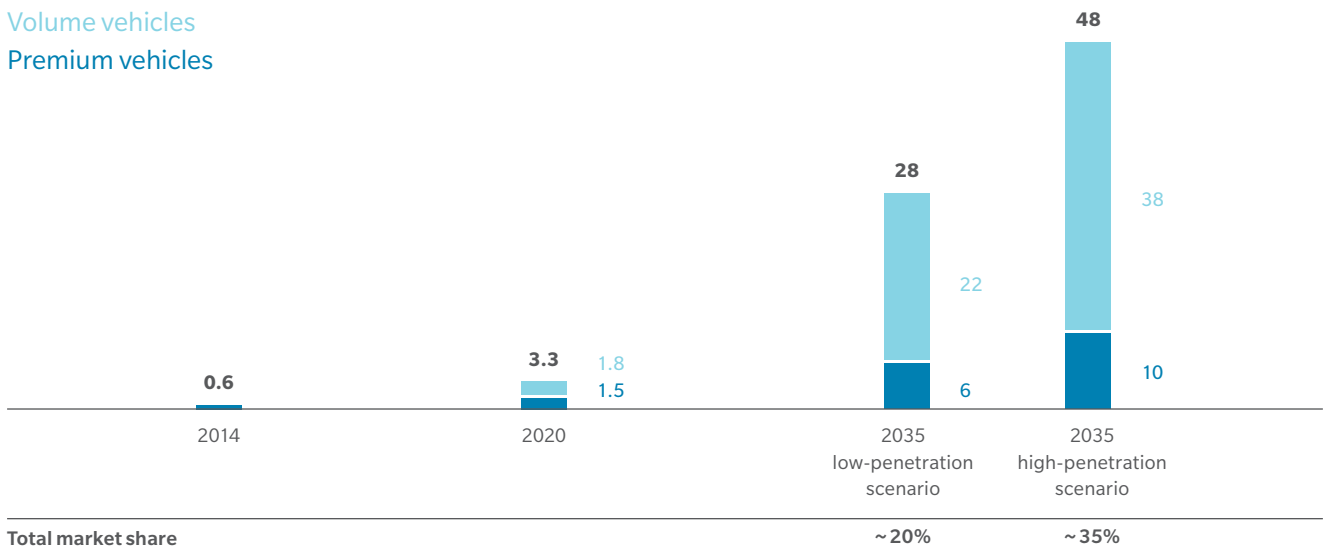
This article looks even further into the future, to the year 2035, by which time a large number of fully autonomous vehicles are expected to be on the road. A key success factor between now and then is for automakers to correctly

## Global production forecast for semi- and fully automated vehicles

In millions of units: passenger cars and light commercial vehicles, 2014-2035

Volume vehicles

Premium vehicles



Source: LMC AUTOMOTIVE GCAT Q2/2014; Oliver Wyman analysis

anticipate the evolution of autonomous-driving regulations and insurance coverage. This will have a huge effect on market penetration. On the technology side, making functions operate seamlessly to ensure driver comfort and reducing the cost of these advanced systems are key challenges. In addition, issues such as liability, privacy, and international harmonization have to be tackled before large-scale deployment can occur.

### STEADY GROWTH

Given the hurdles described above, experts forecast that there will be a mixture of semi-autonomous and fully automated vehicles on the roads in the next decade, with steadily increasing penetration of both. With a minimum starting cost of approximately US\$10,000 to equip a midsize vehicle with fully autonomous driving capability, the technology is expected to be found mostly in the premium segment and on commercial vehicles at first.

Assuming that all hurdles can be overcome, a significant portion of the passenger cars and commercial vehicles built 20 years from now will be either semi- or fully automated. Oliver Wyman's forecast shows that these autonomous cars will account for 20 to 35 percent of total global production by 2035. By then, the market segment should be well established and include many mature, experienced companies along the value chain.

### NEW VALUE POOLS

As end customers get excited about how this new technology will transform transportation, companies are preparing to take part in this revolutionary trend. Which industries will benefit most? What can the various players contribute? Which business models will emerge? Will automotive firms dominate or will software giants take the lead for on-highway solutions? How can off-highway industries (agricultural, construction, and defense) profit from this innovation? And, most importantly, why would end customers adopt autonomous driving and spend money on such vehicles and related services?



To answer these questions, companies need to understand the source of future value from autonomous driving. Over the past two years, Oliver Wyman has researched multiple aspects of mobility and autonomous driving. The five largest “value buckets” have a combined estimated value of more than US\$200 billion:

**Improved safety:** Sophisticated autonomous vehicles are estimated to have one-tenth of the likelihood to be involved in an accident than a car operated only by a person. While most customers expect improved features in their new cars, the radical safety innovations offered by autonomous vehicles could coax car buyers to invest in high-tech options, creating a new revenue stream. End customers, however, will expect a continuous flow of innovations and will expect what is revolutionary today to become standard tomorrow, which will increase price and innovation pressure for both automakers and suppliers.

As car accident numbers decline, there will likely be a corresponding decline in traditional motor insurance premiums. In addition, vehicle insurance is likely to change from being an end-customer responsibility to a product liability for manufacturers. This anticipated shift to more specialized insurance products may be offset by a premium erosion of US\$50 billion to US\$75 billion in the global traditional motor insurance market.

**Enhanced mobility:** Customers are projected to be willing to pay extra for the convenience of having a vehicle that can park itself or run an errand alone. Such features might also ultimately reduce the number of cars per household, resulting in a potential decline in US vehicle sales of up to 15 percent by 2035. As mobility and related services evolve, autonomous vehicles are expected to provide motorists with more available time during the ride that can be used to plan adjacent activities, giving online advertisers another opportunity to reach customers. Integrated mobility concepts, such as using autonomous vehicles in car-sharing or car-pooling fleets, will allow for innovative B2B, B2C, and P2P concepts. Self-driving cars also will serve an untapped customer base that includes people who are physically unable to operate a vehicle. These examples show how autonomous driving will be a major enabler of the emerging global mobility services market. It is estimated that self-driving cars will enable up to 30 percent of these mobility services, resulting in a value contribution that could easily exceed US\$100 billion in 2035.

**Data leverage:** Big data, which describes the increasing amount of data available, collected, stored, analyzed, and monetized, and the autonomous vehicle make a perfect match. During operations, autonomous cars will generate a large volume of data that could be used by automakers or suppliers for R&D purposes or optimized, customized marketing based on a holistic customer value management approach. Autonomous vehicles could potentially expand the global market for location-based services, creating a multi-billion dollar business that could reach as much as 15 percent of the global online advertising market, assuming privacy hurdles will be overcome.

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\$50 billion-  
\$75 billion

Potential insurance premium erosion globally

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>\$100 billion

Potential value of mobility services enabled by self-driving cars in 2035

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**New logistics schemes:** Current logistics schemes could be turned upside down as autonomous vehicles eliminate constraints for commercial vehicles, such as driving-hour limits, resulting in higher asset utilization and improved productivity. The first step could be having autonomous vehicles take over while the driver adheres to mandatory resting hour regulations.

**Improved urban infrastructure:** Urban infrastructures are likely to be affected in a number of ways by the autonomous vehicle. Because of freed-up driver time and improved congestion, cities will extend further into lower density urban areas. Certain parts of the infrastructure could become autonomous-driving-only zones. And with a reduced need for parking lots within city centers, such locations could be used for other urban building purposes.

## WHO WILL PROFIT?

Companies will have the opportunity to benefit from the five value buckets if they leverage the right assets and capabilities, if they can adjust to the required structure of new business models, and if they can monetize the value from end consumers, data, and/or the emerging B2B network.

The newly emerging autonomous driving value chain, which includes component suppliers, automakers, software integrators, infrastructure providers, third-party data processors, and service providers such as insurers and advertisers, involves many companies that are currently in separate business fields and that compete for the above-described value buckets. The matrix in the exhibit on the facing page shows how the different players could benefit from the various value buckets. For example, an IT company such as Google could generate additional advertising revenue by targeting drivers who are no longer forced to pay attention to the road. Innovative automakers and suppliers might benefit from offering sought-after safety relevant time-saving technology to end customers, but also could suffer if the rise of the autonomous car reduces overall vehicle production.

Automakers, suppliers, and IT companies will need to invest more in R&D to make autonomous driving a reality in a risky environment. Regulatory hurdles could slow the launch of autonomous cars and overall customer acceptance has not yet been proven.

For insurers, an extremely large global field of business is emerging where new policies will be required, but the long-term associated risks will need to be dealt with as well. Insurers likely will partly shift their business away from end customers and toward product liability for OEMs, suppliers, and mobility service providers.

Dedicated suppliers could benefit from offering the required components and technologies to equip global fleets with the new technology. IT companies (and service providers) may gain entry into the market by bringing in their data processing and service management capabilities.

## SUCCESS FACTORS

Oliver Wyman has identified a range of success factors for companies that aim to play a role in autonomous vehicles. First of all, business models for the sector need to be developed similar to those found at start-ups. Test-and-learn cycles need to be institutionalized in R&D processes and data privacy and IT security need to be guaranteed.

### Matrix of players that could potentially profit from autonomous vehicles

VALUE BUCKETS					
PLAYERS	SAFETY	MOBILITY	BIG DATA	URBAN INFRASTRUCTURE	LOGISTICS
Consumer	X	X	X	X	X
Automaker	(X)	(X)	X <sup>2</sup>		
Supplier	(X)	(X)	X <sup>2</sup>		
IT company	(X)	X <sup>1</sup>	X		(X)
Insurance	(X)	(X)	X		

X : directly dependent  
(X) : indirectly dependent (e.g., due to increased willingness to pay or shifting demand)

1 Especially the online advertising market  
2 Leverage, e.g., for R&D purposes

Source: Oliver Wyman analysis

Depending on their original business model and their position in the autonomous driving value chain, segment-specific success factors can be derived by the various players. Automakers, for example, need to quickly identify relevant value buckets, because they will need to help offset their high upfront R&D investments. Timely strategic partnerships will guarantee fast-acting automakers an early-mover advantage. Suppliers, on the other hand, need to provide cutting-edge technology at a competitive price. Due to the high complexity of autonomous driving technology, suppliers will need to offer automakers, especially those in volume segments, a comprehensive “autonomous driving package.” IT and software players will have to collect as much data as possible and position themselves as gate keepers for data flows between automakers and downstream service providers. Insurers will need to translate this flow of new data into relevant insights on changing claims patterns and shifting or arising demand for risk protection from both end customers and automakers.

Companies from various industries have the chance to position themselves within this promising but challenging market. Overall, rational forces are expected to shape this sector. End customers will choose mobility solutions that provide the best comfort, value, and availability. Winning players in this market will anticipate these requirements to offer tailor-made solutions.



# THE AUTOMOTIVE RETAIL EXPERIENCE OF THE FUTURE

Since the early 20th century, automakers have focused on one overarching imperative: lead the industry by differentiating on the latest technology. But this game is getting harder to win. The speed at which automotive technology is advancing means that today's breakthrough innovation is tomorrow's standard equipment. As a result, product innovation alone is not enough to establish a lasting competitive advantage.

Ryan Kovalak

So, how can automakers gain an advantage? The answer lies in "experience innovation," looking past products to the entire experience ecosystem – the showroom environment, sales and service delivery, and Internet and mobile experiences – to find new opportunities for differentiation. It requires re-imagining the customer experience, and applying the same innovative spirit to the experience as is afforded to products. The showroom is still the

core of the car-shopping experience, with the Web and social media quickly gaining in importance. Unlike other parts of the purchase process, however, little has changed in the automotive showroom, making the car buying experience disjointed across channels. This experience falls short of what other retailers have taught today's consumer to expect. The challenge, in part, will be recasting the car buying experience to give the consumer more control.

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“By looking beyond the product to take a broader view of customer issues and activities around the product, companies can find new ways to address unmet needs, create talk-worthiness, and fuel differentiation.”

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**Rick Wise, CEO of Lippincott**

### MEETING RISING EXPECTATIONS

Innovating the retail experience isn't just about building buzz – it's about driving growth. A recent study by Lippincott of more than 500 consumer-facing brands found that market-leading customer experience correlates with market-leading financial returns. The stock price of brands that excel at providing a positive customer experience appreciated an average of 7 percent more than the laggards each year between 2009 and 2014. Here are a few things automakers should consider when seeking to innovate the experience:

**Look for inspiration outside of the category:** Consumers' retail expectations are ever increasing. In today's hypercompetitive environment, many companies have upped their game to deliver multidimensional, engaging retail experiences. But, the typical automotive showroom has not kept pace, leaving the consumer with little reason to get excited. Together, automakers and dealers need to take note and enhance the showroom experience. They can do this by paying more attention to the details – sensory elements, media and technology, merchandising, feature displays – as well as being more in tune with what stories are being told. The showroom is more than just a place to sell cars; it's the physical embodiment of the brand and should be leveraged to its full potential to inspire, captivate, and ultimately sell.

**Embrace digital:** 96 percent of new-vehicle buyers use the Internet when shopping for a car. They are comfortable with shopping across channels, moving from their smartphones to their laptops to brick-and-mortar outlets and back again. A 2014 J.D. Power study of car shoppers found that over a third even accessed vehicle information websites via their smartphones or tablets while at the dealership. Recognizing this new paradigm in car shopping behavior, automakers need to develop digital strategies that both

empower consumer decision-making and provide benefits to the dealer. The key is to manage the online channel and provide the tools necessary to seamlessly extend a shopping journey that begins online into the dealership.

**Empower employees as brand experience ambassadors:**

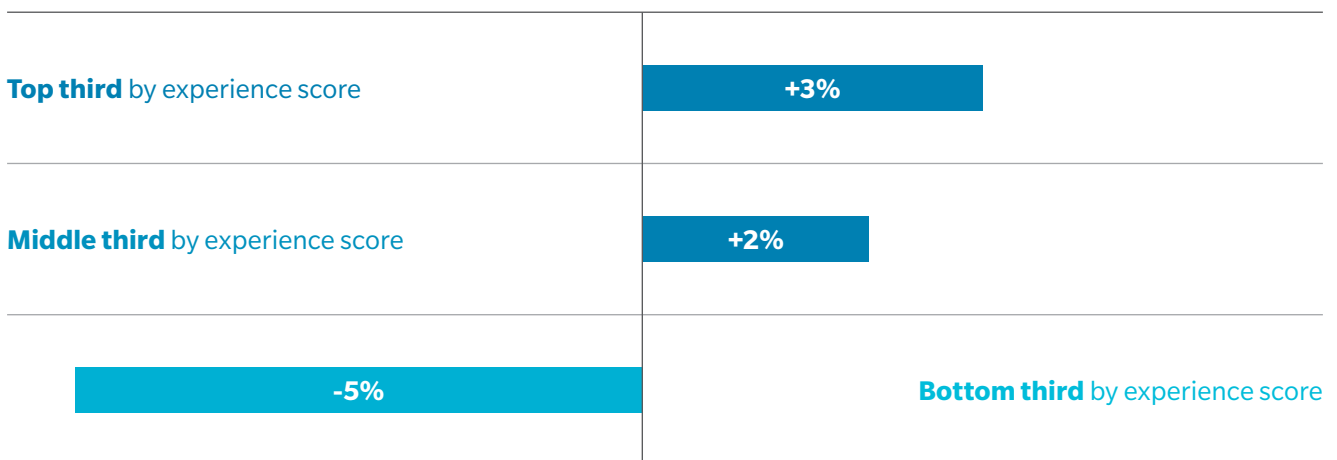
More than ever, retailers recognize and understand the role frontline employees play in shaping the customer experience. Store associates have the power to impress or turn off a potential customer in an instant through their behaviors and interactions. According to Tulip Retail’s 2014 Sales Associate study, when service by sales associates was “very helpful,” shoppers were nearly five times more likely to buy in-store. The impressions associates leave are critically important, as consumers today are quick to share their experiences and opinions both online and through word-of-mouth. In the case of automotive retail, what they say not only reflects on the dealer but also on the automaker’s brand. Because of this, automakers should aim to elevate the quality of sales and service they deliver. This means training frontline people to provide exceptional one-on-one service and to build better relationships as a way to enhance the brand. Store associates are the ultimate brand ambassadors, and, accordingly, they should be equipped with the appropriate guidelines and tools to deliver exceptional service experiences.

**EMBRACING EXPERIENCE INNOVATION**

Consumers are looking for a seamless omni-channel experience. Outside of the automotive retail sector, many retailers have found ways to modernize the experience to better serve demanding, well-informed consumers. Having fallen behind in delivering a compelling customer experience, automakers would be well advised to look for ways to improve. In creating a vision for the future, the key question to ask is: You’ve innovated the car, now how about the buying experience?

**Incremental return as a function of the experience score**

Incremental 5-year shareholder value compound annual growth rate versus average Lippincott Brand Study scores, 2009-2014



Source: Lippincott Brand Study 2014



# IMPLEMENTING BIG DATA IS THE HARDEST PART

Using data to support decision-making is widespread across many industries as more and more application fields are developed. In the automotive industry, however, there is still a disconnect between what seems possible and actually succeeding at making better decisions based on insights from big data. The reason for this is that automakers have struggled with maximizing the power of big data. Oliver Wyman has identified multiple critical factors that can result in sustainable and successful implementation of big data applications.

Sirko Siemssen  
Alexander Hahn

The increasing wealth of data available to the automotive industry has led to a large number of application fields for big data. Decision support based on data can be extremely powerful across the entire automotive value chain. Many critical decisions, however, are still being made without tapping the full potential of big data. For example, automakers on average directly spend more than 10 percent of the vehicle price on discounts (not including additional dealer discounts at the point of sale). Furthermore, the likelihood that a customer will purchase another vehicle from the same automaker is only about 50 percent across markets and brands. Both areas are of vital financial importance to the industry – but each is still only partially assisted by systematic data analysis.

There are a couple of reasons for this. First, only recently have automakers had access to comprehensive customer data from areas such as telematics, mobility services, improved customer relationship management (CRM), and stronger dealer integration. Second, there have been substantial implementation challenges. Systems nobody uses, data results that are not trusted, and reports that lack practical importance – the bottom line is that many big data initiatives fail due to misconceived implementation. Oliver Wyman has identified a number of factors that are key to increasing the chances that big data initiatives in the automotive sector will be successfully implemented.

## START WITH DECISIONS

In contrast to public opinion, big data analysis only gives answers to specific questions. The key is to start with specific decisions that need to be improved. Examples in automotive sales would be early contract termination, upselling of service products during the vehicle usage term, or profit optimized configuration of stock vehicles. It is crucial to understand which decisions drive value and then to determine the right analytics and intelligence to address these questions and improve results. Data provision and consolidation is a subsequent step.

## FOR THE USER, BY THE USER

It is often impossible to develop applications that truly enable better, faster, simpler decisions when applying traditional IT approaches such as waterfall processes and data warehouse programming. Why? Because tailoring fit-for-purpose decision support requires constant interaction with the final users. There must be a “for the users, by the users” mindset. That means prototypes that can be tested and criticized as well as agile approaches to programming that quickly turn the prototyping approach into improvements that excite. This typically requires an agile data layer – a so-called “sandbox environment” – at least for the development stage. Primary systems rarely need to be changed to accommodate a big data application because that would take too long. What’s required instead is an agile data mart that feeds off and integrates all possible data sources. Such an approach not only leads to better results but also to much shorter development times. Typically, the time-to-realization can be cut by a factor of three to six. That means that what in the past would have taken a year and would have included substantial usability risks can be done in two to four months, with better usability and relevance.

The problem is that many big data projects start out as large IT projects, based on hundreds of pages of theoretical specifications and programmed directly into the core data warehouse (which must support many core processes in parallel). Due to a lack of guidance from the actual decision-makers and because of superficially defined analytic outcomes, many projects often end up being over-engineered and fail to meet user needs. In the end, the applications will not be used and will be written off.

Big data analytics must be set up as learning systems. No single analytical project will have all the answers beforehand. What’s vital to achieving the desired results is testing on specific customer data sets, implementing actions, and reviewing them.

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A large, stylized blue graphic consisting of a greater-than sign followed by the number 70 and a percent sign (>70%).

Reduction in time-to-realization possible  
with an agile and constant user interaction  
development approach

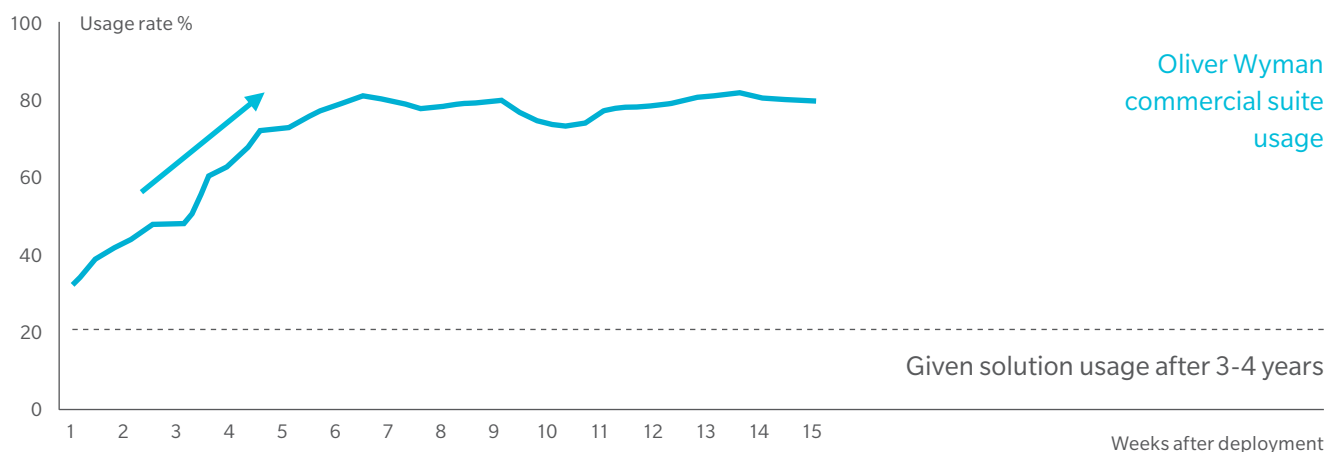
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## DESIGN FOR THE DECISION-MAKERS

Big data applications are only effective if they are used by decision-makers for decision-making. The reality is that many decision-makers lack this access because it is often restricted to a few managers, due to perceived confidentiality issues or top management exclusivity. What is worse is when these million-dollar systems have just a single-digit number of users, because they are either little known or so difficult to operate. The effectiveness of widespread system access is evident. Decision-making in large corporations is – despite top management perception – a decentralized process. Many key decisions (such as discounting, ordering, engineering specifications) are made by a multitude of decision-makers spread throughout the organization. If those people are provided with the right analytics, decision-making quality will sustainably improve. In addition, widespread access will enhance a common understanding based on the same data. It is also crucial that applications are part of organizational processes. If, for example, a sales steering tool is developed, it needs to be defined as a standard element of the sales planning process.

### High usage rates are key for big data success



Source: Oliver Wyman analysis

## INTUITIVE AND ATTRACTIVE

Systems need to be intuitive and attractive to use. Successful smartphone apps offer easy usability even if they are highly complex. What these apps have in common is that they deliberately discard everything that is not absolutely necessary. This needs to be done in corporate environments, too. Oliver Wyman for example has developed app-style systems for a range of commercial decision-making. In development, User Experience Designers test and optimize every user interaction to create applications that are so simple they require no instructions. One example is promotional decisions on both the wholesale and retail levels. By analyzing various sales promotions (such as promotion type, discount level, region, dealer, communication channel), their effectiveness can be predicted. Via a promotion app, the salesperson can then simulate a certain promotion that has been planned. The app will show the salesperson the expected rise in units and financial income, discount spend, cannibalization, and resulting net effects. Applications also need to be promoted within the organization to create a pull-effect by advertising their benefits. Convinced users will act as advocates by sharing their experiences with wider audiences.



# REGIONAL R&D: FOREIGN AUTOMAKERS IN NORTH AMERICA

Joern Buss

Over the past several decades, all major non-US automobile manufacturers have established fully functional regional research and development (R&D) centers in North America, capable of complete vehicle design, development, and engineering. These entities typically work in conjunction with sister units that do styling, planning, and manufacturing to produce vehicles for sale locally and, increasingly, for export markets. Oliver Wyman analyzed the structures of several far-flung automakers' regional R&D units to see what is working – and what could be done better.

## LOCATION, LOCATION, LOCATION

Foreign automakers typically establish regional R&D centers in North America as part of their global distribution strategy, for the purpose of closer-to-market development and testing. Oliver Wyman's analysis found that it's typical for each automaker to have four to seven R&D sub-centers in the US, with some coverage of Latin America and Canada. The largest hubs and often regional R&D headquarters tend to be in the Midwest (Michigan and Ohio); these can account for two-thirds or more of the typical organization's workforce. Prime locations for other functions include the Silicon Valley/Bay Area of California for advanced research; Los Angeles for planning, sales, and design; and places with wide seasonal climate variations, such as Arizona and Colorado, for the purposes of testing.

This type of distribution corresponds both to the need to locate near certain components of the value chain as well as where talent can best be found. Interestingly, in the North American sphere, there has not yet been a move to establish larger engineering centers in lower-cost Mexico. This runs counter to historic European trends, such as the setting up of R&D units in the Czech Republic. The reasons likely include perceived educational differences and the current buildup of advanced research activities in Northern California (e.g., electric vehicles and software). This may be short sighted – and may originate from the typical functional silos within automakers and the often related misalignment of global growth plans by function.

## ORGANIZATIONAL SETUPS

From an organizational perspective, North American R&D units comprise mainly technical staff (85 to 90 percent) – engineers, technicians, and technically skilled labor. Functional variations tend to be small. In general, chief engineers/project leaders manage the development of specific (regional) vehicle models and report to a vice president, who then reports to the head of the regional R&D organization. Some organizations, however, are starting to move to a system-based setup. In these cases, one team is responsible for all development phases (such as design, testing, and quality control) for one subsystem (such as interiors) across all vehicle models. While this addresses the increasing number of platform architectures and advanced engineering requirements, it can be challenging, as making it work requires a higher level of global coordination across functions.

It's a positive sign that most of the regional R&D centers are structurally "flat," with relatively few management-level staff, suggesting a wide span of control (five to six direct reports) and a clear division of roles. This set-up can generate inefficiencies, however, requiring additional technical administrative staff to act as liaisons between technical staff located in different North American sub-units and overseas facilities. How these liaisons are managed, e.g., number and activities, defines the difference between an effective and a bloated, ineffective regional R&D organization.

All of the analyzed automakers utilize local personnel both in management and staff positions, along with expatriates (expats) from the home country in key positions. Expats may hold management or technical roles or act

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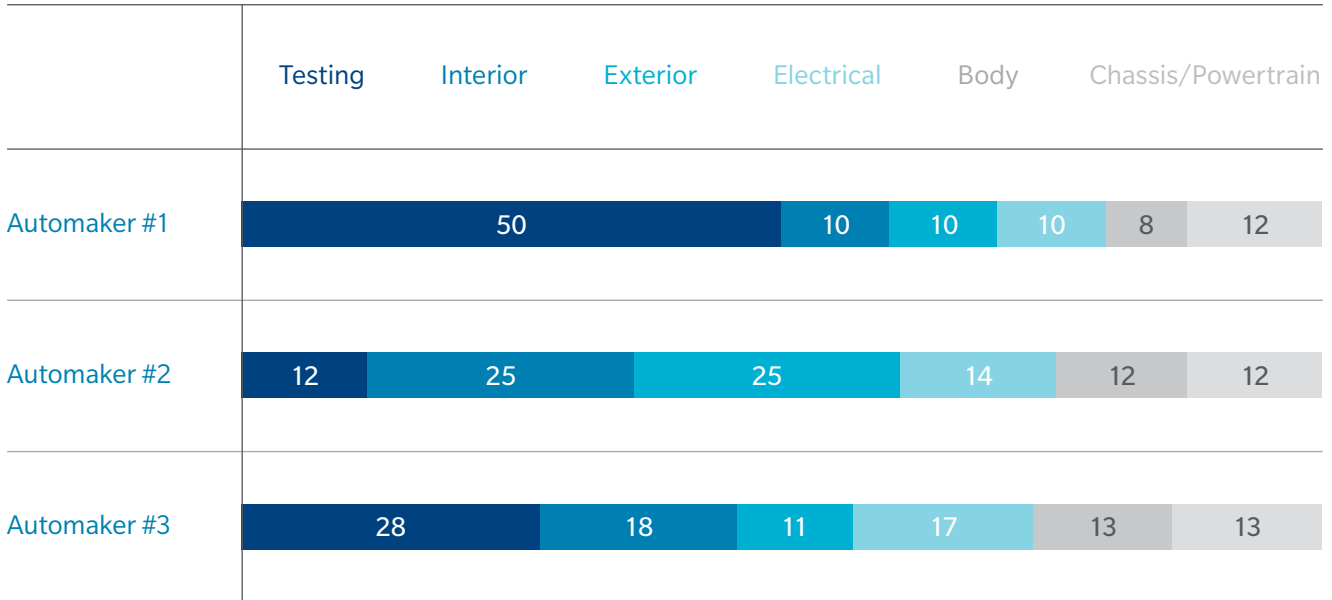
Typical number of North American R&D units of foreign automakers

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as advisors to local senior management; they are less likely to be middle managers. The longer an R&D organization has been around – and thus has had time to show its value, engineering quality, and reliability – the more likely the company is to move away from expats and allocate more responsibility and authority to local employees.

**Example automakers: Breakdown of R&D functions of US regional R&D centers**

In percent of technical staff



Source: Oliver Wyman analysis

**REGIONAL R&D LEADERSHIP**

The R&D organizations Oliver Wyman looked at feature a variety of leadership styles – from US-based with some input from overseas headquarters, to a much more direct-to-headquarters reporting style. R&D senior leadership typically consists of expats with long tenure who have been groomed internally. This assures organizational, process, and political tie-ins with the automaker’s global R&D organization.

All of the firms analyzed recognize the importance and the challenges of leading a large regional R&D organization and so have put in place R&D heads with at least 10 to 15 years of varied experience, typically as chief engineers with budgeting, project/program management, human resources, and decision-making exposure. These executives also usually have spent three to five years in a senior leadership position at global headquarters and have had other international assignments early in their careers. This emphasis on putting the right person in the job heads off issues seen at some other automakers, where R&D leadership is based on generic rotational schedules. In those cases, the respective regional R&D organizations then tend to mature at a slower pace and take longer to maximize their potential.

## PRODUCT DEVELOPMENT PROCESS

The analyzed R&D organizations handle development for their assigned vehicles in two major ways: Either a regional R&D center has full development responsibility, or responsibility remains overseas at the global R&D headquarters. Another key difference involves the influence and skill set of the local product planning group, especially whether it can conduct extensive cost analysis and develop full engineering specifications prior to a program's approval.

In cases where program ownership remains overseas, those automakers also typically handle final vehicle program approval directly at the CEO or executive committee level. Where there is more local autonomy, program approval processes are handled through the executive level of the US-based organization. While it can be reasonable to tie the approval process to level of autonomy, a better rationale might be to base program ownership on regional needs/customer demands, taking into account the maturity and performance record of the R&D center. Per research, no automaker performs regular comprehensive comparative maturity assessments of its regional R&D centers to strategically develop the global R&D network. Oliver Wyman believes this is a shortfall and minimizes or delays the building out of a true global R&D network and access to a global talent pool.

## GOING THE DISTANCE

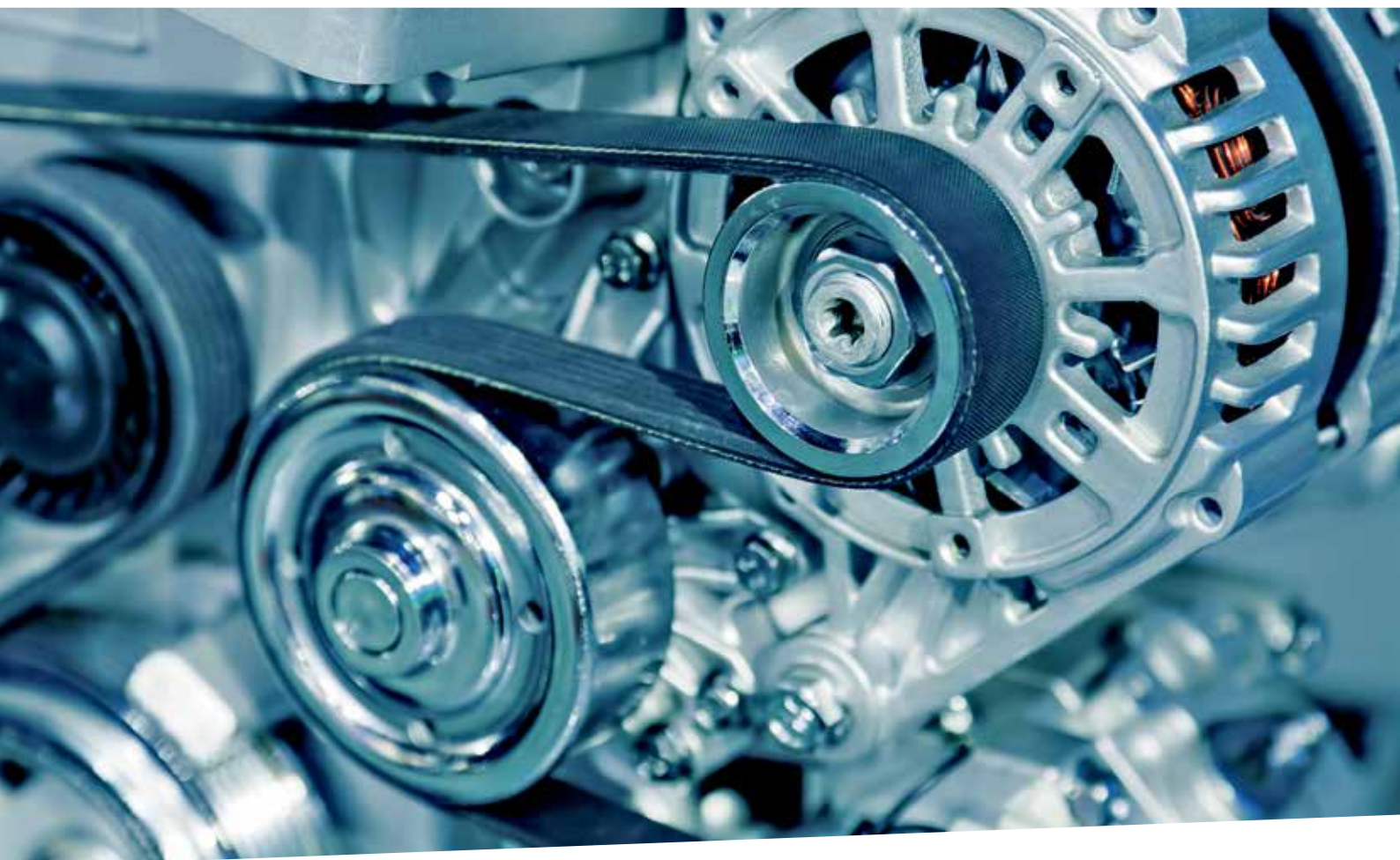
While similar in their realization and generally well led, foreign-owned regional R&D centers in North America have the potential to enhance their standing and development responsibilities. Moving to more of a structural focus on sub-systems (rather than vehicle models) pays tribute to overall product development trends. But these organizations might flourish even more if given increased autonomy in line with their capabilities and potential to drive demand specific to the North American market. Of course, this will require regular comprehensive comparative maturity assessments of all regional R&D centers by the automaker to understand the baseline and determine any development actions that need to be taken. In addition, to fully tap into local skill sets and talent pools, regional R&D centers should be given the mission to interact with local academic institutions – as this is one area where all regional R&D centers in North America of foreign automakers appear to fall short.

# INCREASING ORGANIZATIONAL MATURITY AT SUPPLIERS

Supplier industry requirements are tightening and organizational complexity is on the rise. While the degree of change needed to cope with this differs, transformation is often required to increase organizational maturity. Most transformations fail, but success can be achieved through a holistic, comprehensive approach that includes a full review of organizational architecture.

Sébastien Maire  
Lars Stolz  
Daniel Kronenwett

A recent Oliver Wyman survey found that two out of three companies undergo a fundamental re-evaluation of their organizations every three years, and nine out of ten reassess their businesses every five years. Successful automotive suppliers recognize this trend. That is why, more than ever, adapting the organizational model is a top item on the executive team agenda.

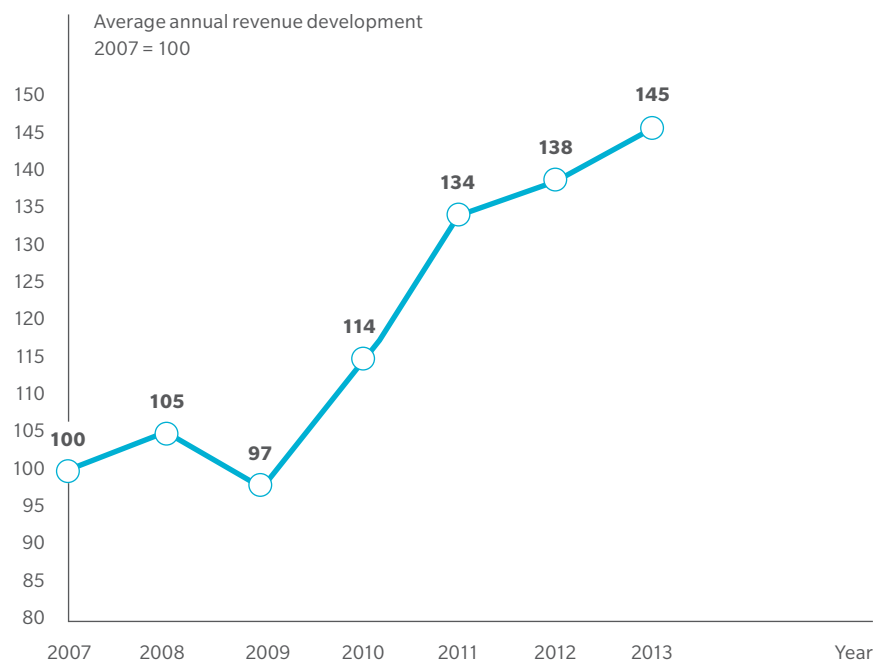


Many suppliers already have adapted their structures in the past few years; however, the challenges continue. For example, there is significant pressure on structural costs. In the past, structural costs rose primarily because suppliers were expanding and taking over more value-added work from automakers. This trend will continue, which will force suppliers to work even harder to manage projected growth. If structural cost is not addressed properly, it will put additional pressure on margins.

For suppliers, developing a more mature organization is one of the keys to ensuring future success. Doing so provides the opportunity for suppliers to align their “internal engine” with the evolution of their corporate culture and strategy. Oliver Wyman research shows that strategy alignment is the No. 1 reason for starting an organizational transformation. But establishing a new strategy is just one catalyst for transformation.

### Automotive supplier growth

Indexed to 2007, n = 362



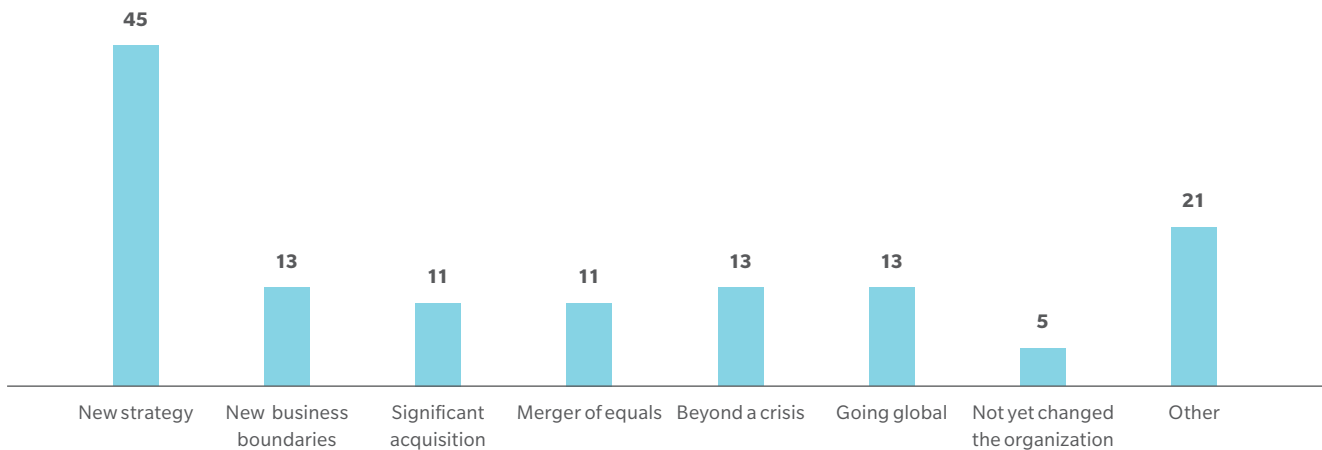
Source: Oliver Wyman Supplier Database, Amadeus, Thomson Reuters

### ADAPTING TO RAPID GROWTH

Suppliers have grown rapidly over the past few years – organically and via mergers and acquisitions. As these companies grow, they develop in several different domains. The trouble is that many are slow to adapt their organizational model to new challenges and business growth. To perform successfully, the organization’s architecture needs to be altered to comply with major business and strategy shifts. When product lines grow and the international customer base expands, structures become more complex. Large, truly global suppliers (revenues of €5 billion and more) often start to develop a business unit structure with individual functions and shared service centers.

## Reasons for starting an organizational transformation

In percent of responses, multiple answers allowed



Source: Oliver Wyman analysis

Through organizational transformation, suppliers need to preserve or regain performance by addressing four main dimensions: process, decision-making, performance management, and culture. It is crucial to thoroughly describe key processes, especially how tasks need to be performed. If decision-making becomes less straightforward after a period of business growth, then execution will slow. The recommended solution is to clarify roles, assign responsibility, reinforce discipline, and make sure that the right people are part of decision-making committees. The third component is measuring performance in two key ways: operationally and financially. As the business expands and the number of managed entities grows, control mechanisms become crucial. Finally, a company's culture also is subject to change. An owner-run company guided by paternalism and entrepreneurial spirit must make major adjustments if it wants to go global. The reinvented company needs a set of guided behaviors and a risk management culture, not to mention a greater sense of rigor and professionalism.

### THE BENEFITS

Aligning the entire organization with a clearly defined corporate strategy can help a company conquer new markets while quickly responding to customer trends. Embedding a new "growth DNA" within an organization can significantly drive revenue potential.

The reorganization process typically results in structural improvements, such as streamlined overhead functions (adjusted via benchmarks), optimized management layers, and more agile teams. Project experience shows that such changes typically result in structural cost savings of 8 to 10 percent.

Clear organizational rules and responsibilities facilitate more transparent decision-making and more effective follow-ups throughout the hierarchy, helping to reduce corporate risks. To reduce the overall risk profile, risk-minded behaviors should be rewarded and unsuitable behaviors corrected.



## HOW TO START THE TRANSFORMATION

**Step one:** Clearly define a business strategy and outline a “case for change.” Relating to this, parameters should be defined as the basis for measuring the transformation’s success.

**Step two:** Shortcomings in roles and governance should be highlighted. The efficiency of management layers needs to be analyzed. This step could comprise “listening to the organization” via interviews with key executives.

**Step three:** Determine blueprints for the future organization. The role of the group and the future decision-making methods should be defined. Resource allocation and the size of blueprint structures need to be considered before assigning staff to specific functional entities.

**Step four:** Describe roles and key performance indicators for all relevant functions and positions in a pragmatic but concise way. Potential adjustments in performance and controlling systems need to be considered.

**Step five:** All relevant stakeholders should be involved via a comprehensive change approach that is communicated throughout the organization to ensure sustainable success.

## EVOLUTIONARY CHANGES

Most automotive suppliers currently are in good economic shape but their organizational systems face two major challenges: increasingly stringent industry requirements and growing internal complexity. To avoid falling behind, strategic transformation is needed. Ideally, suppliers will use periods of strong economic performance to apply evolutionary changes that reduce the risk of having to make radical changes when faced with a crisis.

While change is common across organizations, failure to take action is also common. Experience shows that the crucial factors to achieving a successful transformation are strong leadership, good planning, and disciplined, decisive implementation.

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# 2 out of 3

Number of reorganizations that fail due to a lack of planning and governance

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## CASE STUDY

A European champion of the supplier sector recently acknowledged that its corporate culture was at risk because of rapid growth. The firm’s executive committee recognized the threat and took action. The management team undertook a complete rethink of the culture to determine what should drive the organization’s identity and performance. This led to the creation of a simple, consistent, and practical set of behaviors to help individual managers understand what was expected of them on a day-to-day basis. A tangible result of the work was a handbook issued to first-line managers that answered questions on “how to behave if” for 48 different situations.



# HELP WANTED: AUTOMOTIVE SUPPLIERS AND THE TALENT CHALLENGE

Joern Buss

The automotive industry and especially suppliers are facing an increasingly worrying issue: a shortage of engineering talent. Competition for engineers is heating up between suppliers, automakers, and disruptive technology companies that are moving into the automotive arena. All face similar challenges: addressing healthy growth, replacing retirees, and increasing the advanced technology and innovation content in vehicles. Solving the talent shortage will require focusing on long-term strategic talent development and paying more attention to a shifting work culture – both of which will be new challenges for suppliers.

For the past several years, post-global recession, automakers and automotive suppliers have been straining to recruit engineers fast enough, and the problem only appears to be getting worse: In the United States, 69 percent of respondents to a recent survey by the Original Equipment Suppliers Association (OESA) reported that “engineering talent or availability” would be an internal issue in 2015, impacting the need to meet increased levels of production. And when it comes to new product launches, 57 percent cited engineering talent as a most significant or significant risk. Similar situations exist in other automotive centers, such as Munich and Stuttgart in southern Germany, where unemployment rates for specific types of engineers have dropped below one percent.

Why aren't there enough engineers to go around? In a sense, the automotive industry is facing a perfect storm when it comes to talent: Talent flight during the recession, especially in Detroit, an aging workforce, healthy business growth, and a greater demand for engineers overall (and with more diverse skill sets) at both automakers and suppliers, in response to an increase in high-tech components in cars and a push for innovation. At the same time, disruptive technology companies, such as Tesla, Google, and Apple, are entering the automotive arena, increasing competition for the most skilled members of the talent pool. Finally, generational changes are impacting “where the engineers are,” what they want from their careers, and even if they want to enter the automotive field in the first place.

### CHANGING DEMANDS – AND CULTURE

According to OESA's survey, suppliers of electrical/electronics, powertrain, and exterior components are all reporting talent shortages, with an increasing cost for talent as a key constraint. Things are even worse for automotive software engineering. Globally, automakers see a need for stronger engineering skill sets in the areas of electrification, hybridization, advanced propulsion, and software. There will be a critical requirement in the next five years to add expertise in the growth markets of Mexico and China.

The entry of disruptive technology companies into the automotive space is particularly putting pressure on the high-tech end of the talent pool – even to the extent of siphoning off engineers from other technology companies to meet their needs. For example, Tesla has been hiring more engineers from Apple than from other carmakers, leading to escalating compensation. Apple has started pulling in engineers from automakers and suppliers for its skunk works to develop an electric car. Similarly, Google is investing heavily to develop autonomous vehicles, reportedly hiring away talent from large automakers which then in turn are taking talent from suppliers. Accusations of poaching – and even lawsuits – reflect the extreme strain companies are now under to get the skills they need to compete effectively.

The promise of making cutting-edge cars and components, while supporting environmental sustainability, make electric and hybrid automakers particularly appealing to young engineers. Location also matters: In the US,

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# 69%

Of surveyed suppliers expect a talent shortage impact in 2015

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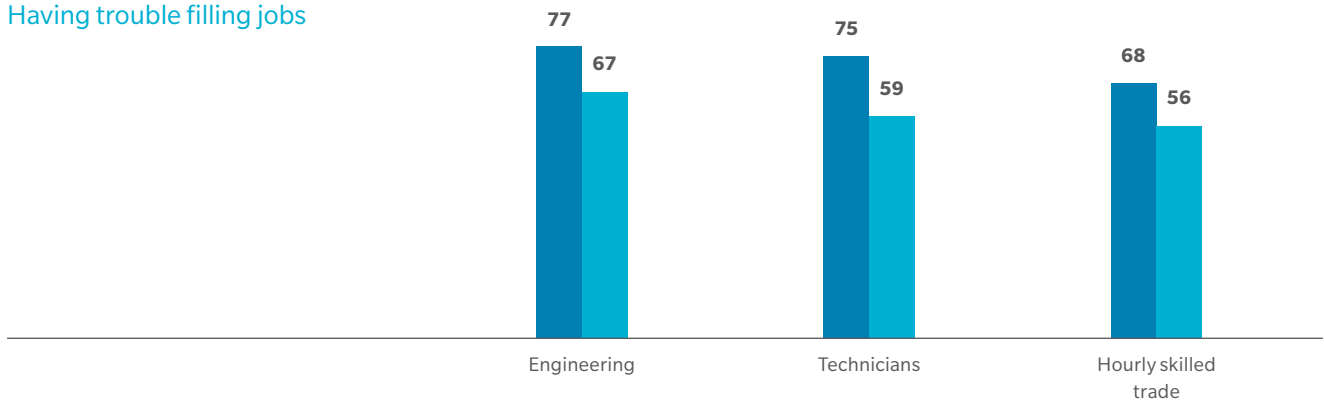
few young engineers are interested in moving to Detroit; they want to stay near centers of innovation and tech culture. This has led to traditional automakers setting up and expanding R&D units in Silicon Valley. Ford is the latest to the party, recently opening its 125-person Research and Innovation Center in Palo Alto (led by a former Apple engineer).

Another challenge with regard to talent is that the traditional job security offered by automakers is less appealing: 70 percent of Millennials typically change jobs every two years, according to Kelly Services. And Millennials rate flexibility as a top perk – making contract work more attractive. (By 2016, more than half of US workers are likely to be independent contractors.)

### Suppliers are having trouble filling positions for 2015

In percent of suppliers responding yes

Planning to hire more staff  
Having trouble filling jobs



Source: Original Equipment Suppliers Association, November 2014 survey

### EXPANDING THE PIPELINE

As the above trends make clear, suppliers will need to move faster on several different fronts to keep up with an evolving workforce and the automakers' "talent contest." Suppliers will have to cast wider cross-industry nets and build automotive training programs to fill in gaps for engineers from other industries. They will need to strategize on how to appeal to millennials, such as through the promise of R&D opportunities and co-location with other tech companies. And with interest waning in job security and a long career at a single company, suppliers may need to develop efficient engineering services outsourcing programs, offering more project work on long-term contracts.

The lack of a sufficiently robust talent pipeline, however, starts with not enough young people considering automotive engineering as a career – or realizing that high-tech skills can be translated to the automotive industry. In response, suppliers (which historically have been more passive in this regard than the automakers) should be reaching out to the next generation by encouraging students in their local communities early on to pursue

## WHEN WOMEN THRIVE, BUSINESSES THRIVE



Women, who continue to be underrepresented at most levels in the workforce globally, are not progressing in their careers despite the past two decades of organizational efforts to achieve gender diversity and equality.

According to the first of its kind Mercer report, “*When Women Thrive, Businesses Thrive*,” if current approaches continue unchanged, only one-third of executive positions will be held by women over the next ten years.

While female representation in Europe, Latin America, and developing countries is expected to grow more rapidly, just one-fourth of women will hold executive positions in the mature economies of the US and Canada by 2024.

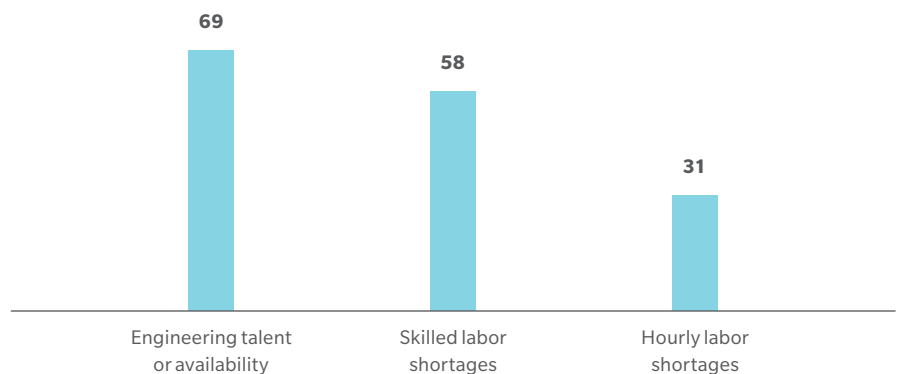
Further information is available at [www.mercer.com](http://www.mercer.com).

STEM (science, technology, engineering, and mathematics) careers, and then following through much more broadly and visibly by supporting local university automotive engineering programs, including graduate-level internships and apprenticeships.

This last step has been shown to work: Companies in Germany and Sweden, such as Volvo, BMW, and Audi, report experiencing less recruiting strain precisely because strong ties with universities and graduate-apprenticeship programs have been the norm in these countries for some time. Audi, for example, has partnerships with some 29 universities. In the US and UK, such programs are less developed, but there have been promising

### Talent is an issue in meeting increased levels of production

In percent of suppliers indicating yes, will be an issue during 2015



Source: Original Equipment Suppliers Association, January 2015 survey

developments: Bosch, for example, is funding fellowships for women and minorities at Clemson University’s automotive engineering graduate program; while in the UK, Jaguar Land Rover and Bentley have expanded their apprenticeship programs.

The other end of the pipeline is redesigning strategies to retain workers and increasing succession planning. There may be a need to develop more flexible options for the most skilled resources as well as for older workers thinking about retirement, with the goal of ensuring that training and know-how get passed on.

In summary, the challenge for suppliers of getting and keeping engineers is unlikely to go away anytime soon, and may get worse. Skyrocketing compensation and poaching may scratch the itch but they aren’t good long-term solutions. Innovation, flexibility, and investment will be as important to meeting future talent needs as they are to building the next generation of cars.

# BOOSTING EFFICIENCY IN NEW CAR LAUNCHES

Juergen Reiner

New car launches are more challenging than ever for automakers. The number of new models is continually increasing, while each vehicle's complexity is rising rapidly as well. These factors have led to many car launches being delayed, which means automakers must spend more money and expend more resources than planned to meet production ramp-up. Five key measures can help automakers boost the efficiency of the car launch process.



Currently, more than 350 new vehicles are launched annually, a trend that Oliver Wyman expects to continue until at least 2025. This means that leading global automakers must cope with more than 20 launches a year; cars debut with several regional specifications and engine variants, and dozens of configurations. In addition, many models feature new materials, such as carbon fiber; new powertrains, such as plug-in hybrids; and highly complex software. At the same time, automakers are encountering rising cost pressure in the form of capital investment needs and operating costs. To cope with these challenges, automakers' production and production-planning arms must boost their launch performance to the next level of excellence, while reining in the costs of doing so.

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# €1.3 billion

Estimated amount that automakers spend annually on new vehicle launches

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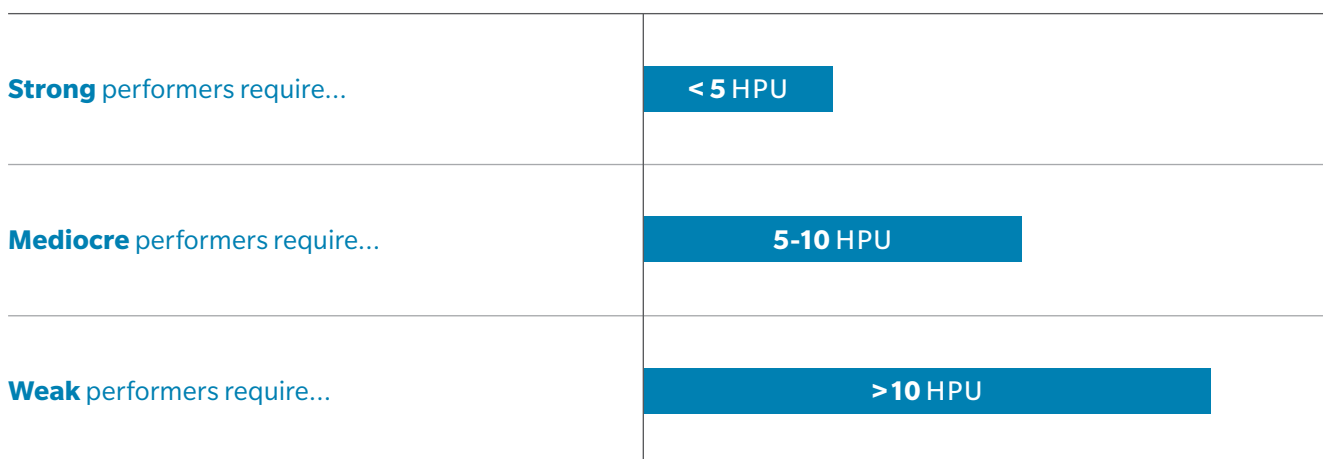
## BIG POTENTIAL

Based on a simple back-of-the-envelope calculation that assumes there are 350 launches a year of models with a production volume of at least 50,000 units in the launch year, and that launching causes an average increase of five hours per unit (HPU) at a global average labor cost of about €15 per hour, €1.3 billion of value are at stake for the automotive industry each year. When launch issues are factored across the entire value chain – including Tier 1 suppliers – the potential costs could exceed €5 billion. Launch HPU varies significantly among automakers, ranging from two to 20 during the launch year. Vehicle class and location of production have little effect on HPU. What does make a difference is the automaker’s launch philosophy.

European automakers appear to struggle the most with extended time-to-market, a high degree of inefficiencies, a large increase in HPU, as well as a high number of required prototypes. With a product-centered approach and high quality requirements, they regularly face late design changes and a lack of parts maturity. Launches are even more complex due to little carryover of parts and extensive use of new technologies. Therefore, many European automakers see HPU increases of five to ten or more. Japanese and Korean automaker HPU increases are generally well below five, and in some cases, even as low as 0 to 0.5, due to their more stringent, process-oriented approach. The downside to this approach, however, is a lack of flexibility. A growing number of top managers at these brands have raised concerns about being limited in their ability to equip new models with features that meet the latest customer requirements. The philosophy of US automakers tends to be somewhere in between the European and Asian models.

### Launch performance measured by hours per unit (HPU) in the launch year

During launch years, the number of additional manufacturing hours per vehicle varies widely at automakers



Source: Oliver Wyman analysis

HPU (hours per unit) cover all labor hours in a factory to produce a car. This includes hours for direct and indirect building/assembly work, as well as related management and support work. Work includes independent manual operations as well as tasks done in concert with automated or semi-automated processes.

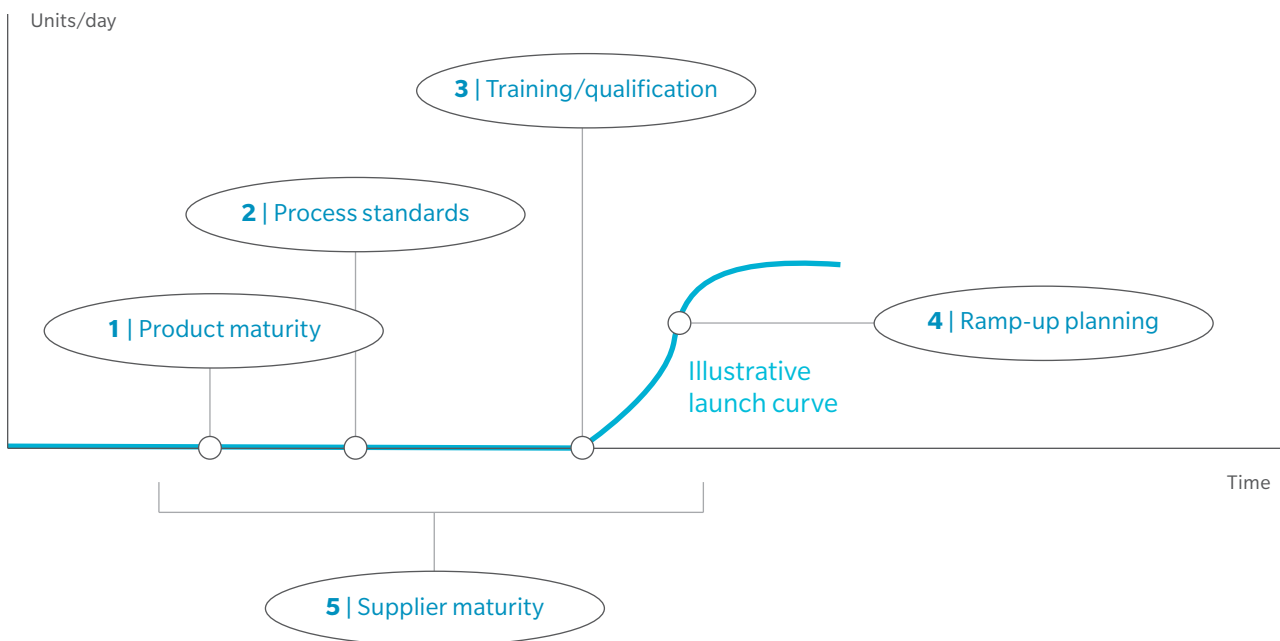
## SUCCESSFUL LAUNCHES

Oliver Wyman has defined five key measures automakers should consider to improve launch efficiency and reduce waste.

**1. Product maturity:** To ensure a high degree of product maturity, best-practice companies focus on a strong link between production and R&D functions. Consistent change management, combined with strict enforcement of maturity gates, helps limit late design changes. One European automaker implements this rigorous change management process 35 months before start of production (SOP). Another lever is the level of carryover in parts. Best-practice automakers achieve a vehicle development process (VDP) of less than 38 months and require only up to 100 prototype and validation units, because of extensive use of digital/virtual technology.

**2. Process standards:** Manufacturing and logistics standards help to reduce HPU during ramp-up. Standardized production processes need to be actively supported within the organization, including the use of simplified tools and seamless transfer of know-how. Korean and Japanese automakers follow a process-driven and launch-oriented product architecture. This includes the use of a frame-carrier concept, with highly flexible work cells that are implemented in the body shop and during assembly, as well as cross-plant launch teams or a common bill of processes.

### Five key components of a successful launch



Source: Oliver Wyman analysis



**3. Training/qualification:** Although most automakers identify employee qualifications as a key lever for a successful launch, they handle this very differently. While a European automaker focuses on leveraging production downtimes early on, a US company trains its employees based on the actual time of use. In the past few years, more self-help tools and virtual training programs have been developed to further enhance workers' skills. Ultimately, successful launches happen when these best practices are followed: use train-the-trainer approaches, emphasize on-the-job training over classroom training, and provide training that is as versatile as needed but as focused as possible.

**4. Ramp-up planning:** A fast production ramp-up is a critical lever for successful launches. Asian players typically follow an online launch with a rolling model change. The launch typically "belongs" to the plant and does not include any buffer times for previous tasks, such as process development or engineering. The ramp-up curve is a given, and not a resulting consequence. However, there are other best practices. One American automaker, for example, tries to work with targeted clock times as early as possible, while keeping empty spaces between vehicles in production.

**5. Supplier maturity:** Early and strong collaboration with suppliers improves part readiness and keeps the component maker from becoming a bottleneck. Automakers, however, have different collaboration approaches: Some automakers provide highly detailed specs and give suppliers limited room for non-compliance while implementing strictly governed processes. Other car manufacturers want a higher level of supplier involvement, providing them with more freedom as well as encouraging proactive support.

## CLOSING THE GAP

Successful and efficient launch management is a challenging task that will become even more critical in the future. Cross-discipline collaboration among departments, functions, and regions as well as early and deep integration of suppliers is crucial for successful launches. Mechanical, functional, and organizational aspects of the assembly need to be flawless and therefore require a high degree of information sharing as well as the ability to accurately process large volumes of data. A focused and strict launch management, featuring a higher degree of standardization in processes, better integration along the value chain, and a comprehensive qualification approach for employees, can enable automakers to turn launches from a constant struggle into a common, business-as-usual success.

# A CAPITAL IDEA THAT HAS GONE UNNOTICED?

Ron Harbour

In some automotive circles, it is assumed that the industry has improved so dramatically that all the big savings are gone. Others proclaim that once significant gaps in cost, quality, and productivity have been narrowed to the point that there is little to gain in today's factories. That is not the case.



With the rise of strong competitors from the Far East over the past 30 years, the industry has become more fragmented and challenging. This has benefited the customer, because tougher competition has resulted in the debut of more new models that possess better features, provide better performance, and offer better safety than ever before. Automakers have been forced to make huge manufacturing improvements and as a result plants around the world have achieved levels of quality and productivity that few thought were possible. The gap separating many companies is as close as ever. In fact, when J. D. Power first measured the quality of new cars in the United States, the ratio difference between the best and the worst brands was almost 10-to-1. Now, it is less than 2-to-1.

### ALARMINGLY WIDE GAPS

Developing a new vehicle from an idea or concept, then conducting the engineering, tooling, launch, and eventual mass production takes four to five years and costs billions. Every car company knows this is a cost of doing business, but it is wrong to assume that those capital costs are the same for all competitors across the industry. Recent research shows there are alarmingly wide gaps when comparing the money invested by the various manufacturers to bring a new car to market.

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3:1

Competitive difference in capital expenditure for stamping dies at comparably capable plants

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Today's automobile companies have narrowed their businesses in recent decades to focus on three major areas of in-house production:

1. Metal forming/stamping
2. Powertrain (engines and transmissions)
3. Vehicle assembly

A closer look inside the car assembly plant shows where the investment gaps exist. Vehicle assembly plants today have four main processes:

1. Metal stamping (which is sometimes outsourced)
2. Body welding
3. Body painting
4. Final assembly

It can cost more than US\$1 billion of capital to construct a factory to produce 1,000 cars per day. Whether building an all-new model or adding another vehicle to an existing plant, money is required for new dies to make doors, hoods, fenders, and all the other body panels. New tooling is needed to hold body parts while they are welded, riveted, glued, or lasered. Money must be spent to replace or reprogram robots. New molds are necessary for bumpers, instrument panels, and trim parts.

An examination of different vehicle programs and plants among various competitors shows that not only are these costs different, the gaps can be significant. Examining the chart on the next page, the cost for a common set of dies to produce a given set of steel body panels can vary by a ratio of 3-to-1. The difference in the cost of the welding equipment in the body shop can be even greater. Also, it can cost twice as much to provide product for the same volume in one paint shop versus another. Why do these differences exist? The companies showing benchmark investment performance are also the most flexible and display some of the highest efficiency and quality in the industry. Let's examine why.

## CRITICAL DECISIONS

The body weld shop is complex. Typically 4,000 to 6,000 welds are made to attach and secure the various metal parts to each other, creating the body that will then be painted and the multitude of parts attached to it. This process must be done right or nothing else will fit or look right. Every company engineers the steps and tooling to perform this task. A number of critical decisions will affect success here.

**Commonality:** Some automakers excel at developing vehicles that look different but underneath they share multiple key parts and, most importantly, processing. This allows multiple vehicles to be built on one production line.

**Flexibility:** Some companies have developed systems that can weld numerous different models in the same system, eliminating multiple tooling. This requires less floor space, less energy, uses fewer people, and saves money.

**Reusability:** By maintaining a relatively common process or sequence build from the old model to the new one, a company can reuse elements of the same system and only has to replace the specific tooling that holds the product in place. This can save 70 to 80 percent of the investment cost when switching from the old model to the new one.

**In-house engineering:** A common denominator among leaders is that the design, engineering, and construction of key elements of the tooling and processes are done internally. These manufacturers believe that developing a production process that is unique, flexible, and lower cost is a competitive advantage.

**Conflict of interest:** Little motivation exists for tooling suppliers to work toward competitive levels of capital investment for their customers. Certainly, they have to be price competitive, but higher prices mean more revenue, while less flexibility means regular replacement of the process rather than reusability.

**Simplicity:** Ironically, the most competitive plants, whether measured based on capital efficiency, quality, cost, or productivity, are not the most automated. Those that successfully balance today's high-tech machines with the right amount of human support do the best. Too much automation can add superfluous cost and complexity.

While many areas of factory efficiency have narrowed significantly in recent years, capital efficiency remains dramatically different. Many companies don't even know or believe that this gap exists. It is clear that an automaker can't offset this cost by increasing the sticker price, because no car buyer would be willing to pay US\$300 more at the dealership to cover the cost of an inefficient weld shop for example. Those automakers that capitalize on the potential savings in this area of the business use the money to add new features, update materials, or improve the performance of their vehicles. Therefore, is this a capital idea that has gone unnoticed?

### Cost to produce stamping die sets for seven major vehicle body panels

In millions of US\$

Company A



Company B



Company C



Company D



Major panels included above:

- Bodyside outer – left side
- Bodyside outer – right side
- Fender outer – left side
- Fender outer – right side
- Hood outer (aluminum)
- Hood inner (aluminum)
- Roof panel

Source: Oliver Wyman analysis

# THE HARBOUR REPORT™

## THE EVER-CHANGING AUTO INDUSTRY



Ron Harbour  
Michelle Hill  
Jim Schmidt

While the global automotive industry experienced a record low point in 2009 with sales of only 61.9 million units, 2014 was the fifth consecutive year of sales growth, with vehicle sales reaching 86.5 million. Much has changed since the global crisis of 2009, when billions in government bail-out money were spent to rescue General Motors, Chrysler, and the US automotive industry. Since then, the automotive industry landscape has changed drastically, with manufacturers and suppliers having to re-evaluate the way they do business globally. The industry has shown signs of drastic recovery in the wake of the global crisis, but that recovery has been highly uneven. Oliver Wyman and the Harbour Report™ team have had a front row seat in observing the transformational changes that have occurred and that continue to transpire in the industry.

The Harbour Report™ has been the pre-eminent auto industry authority on manufacturing performance since 1989. Since the original publication, the report has evolved and grown from three regional studies to one private report with over 400 sites globally across 25 countries. The Harbour Report™ Automotive is a valuable cooperative benchmarking tool that automakers use to improve labor productivity, quality, and efficiency. Over 2,000 unique data points are collected and independently analyzed by the Harbour Report team as part of our analysis. The Harbour Report team has had the unique opportunity to visit most every factory that builds cars, trucks, stampings, engines, and transmissions around the world – many of them multiple times.

Many of the trends and changes witnessed during the downturn continue to be relevant as the industry recovers from the global crisis. Consolidation has led to manufacturers shifting from single-model plants to producing multiple models and body styles, resulting in logistics challenges and cost pressures for suppliers. Flexibility, quality, environmental responsibility, safety, and performance efficiency are now standard requirements of doing business for global survival and competitiveness.

Launching of new models – with increased part complexity, variants, infotainment, and alternative propulsion systems – continues to challenge manufacturers. 2014 topped the all-time record for the number of product recalls, driven by common parts and component strategies across vehicles, brands, and regions. Manufacturing productivity improvements are often offset due to these continuing industry challenges.

While differences exist across manufacturers, regions, and plants, far more similarities are evident. The auto industry is aggressively searching for cost-saving economies of scale through a focus on “more from less” creative solutions. Oliver Wyman has helped facilitate the sharing of competitive benchmarking among all of the world’s major vehicle manufacturers and through this process has helped the entire industry raise its level of competitiveness.

The current Harbour Report™ publication is only available for participants.

# KEEP MOBILITY AT ARM'S LENGTH?

Matthias Bentenrieder  
Alexander Hahn

Mobility is an increasingly important aspect of an automaker's value proposition. Most automakers' mobility units are initially set up as stand-alone businesses, due to the complexity and fast-changing nature of the sector. And it's true that these units do require entrepreneurial independence to compete with non-captive offers when they start out. As they mature, however, sensible integration within the automaker's core operations can be beneficial.



Over the past decade, many car manufacturers have significantly extended their mobility offers as well as their marketing efforts to promote these programs. This move has been in response to a big shift in customer preference from owning to using. Demand for mobility and transport services is expected to grow more than six percent a year in the passenger car and freight markets between now and 2025. Mobility offers range from dealer rentals for workshop replacement vehicles to free-floating car-sharing models and long-term commercial rentals. Most mobility businesses in operation today started out as stand-alone units with substantial entrepreneurial freedom, with their

market offering, operations, and management kept separate from the automaker's core business. While initially this distance was vital to enable these units to catch up and compete against non-captive competitors and win new customers, these businesses now generally have matured to the point where they need to become more closely aligned with car manufacturers' core businesses.

## MARKET OFFER INTEGRATION

Integrating the mobility arm within the automaker's core business can be tricky. Students who have registered for services at a car-sharing site are seldom pleased to receive offers to test drive a midsize sedan from the mobility unit's parent company. They often have no idea the businesses are linked. It's just as risky to the company's profits and brand image to have the mobility unit target mature traditional car buyers with, for example, long-term rental offers.

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# 22%

Forecast annual growth rate for car sharing in Western Europe from 2012 to 2025

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That being said, there are a number of options that can be complementary. A customer who owns a car might also require temporary use of another vehicle; for example, when he is traveling, when she has to make an unplanned trip and doesn't have easy access to her main vehicle, or when the customer wants an alternative to public transportation. Combined offers also can be highly suitable for people who own vehicles that they use infrequently, such as a sports car. On the other hand, mobility vouchers for a convertible might be appreciated by someone who typically drives the family minivan.

Is there a risk of cannibalization between the business segments? Not really, if managed with care. For instance, it could make sense to offer a leasing plan to a person who is a frequent user of the company's car-sharing program. In addition, through customer life cycle management, the company can focus on how best to appeal to a customer as he moves from one mobility segment to another, due to budget and lifestyle changes. Regardless of the scenario, it is vital to provide the person with the ability to easily access information about the different options available through integrated websites and customer portals, as well as seamless customer account access.

## OPERATIONAL INTEGRATION

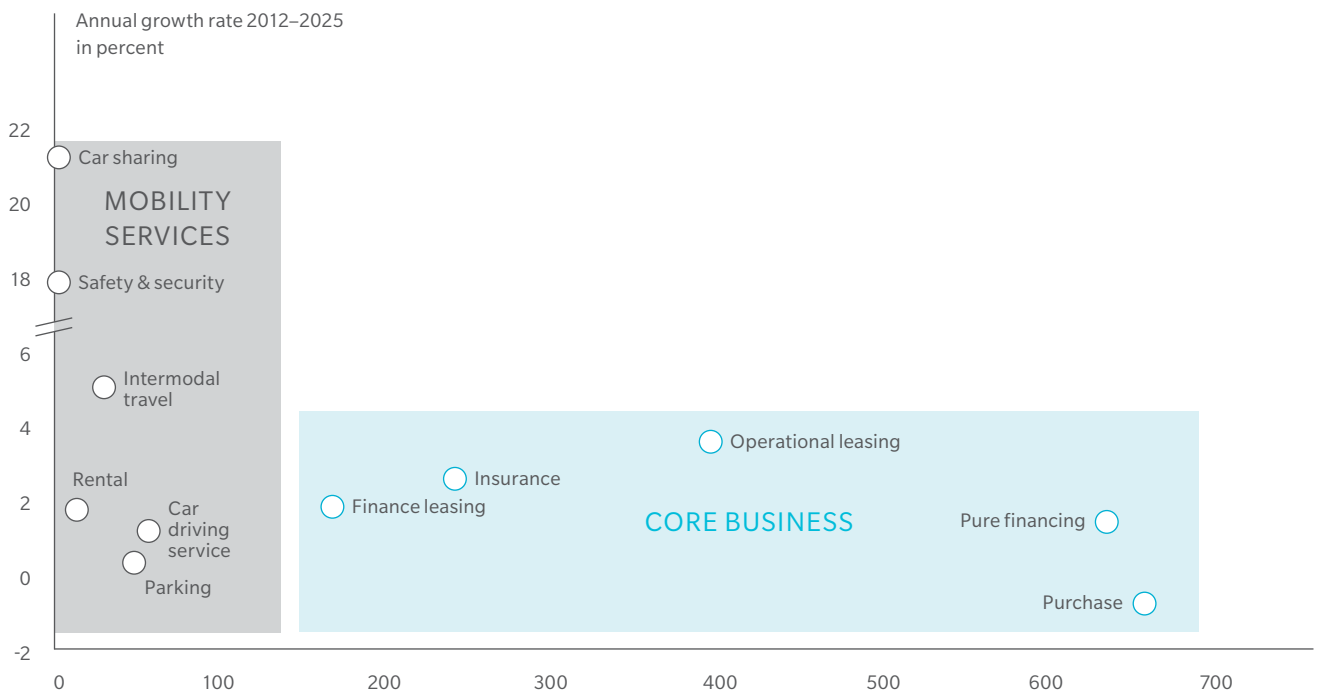
How far the actual operating models should be integrated will vary. Of course, a mobility business unit needs to capitalize on the synergies provided by its larger parent. These synergies should at least match the conditions offered by a non-captive rental rival. Often, however, despite being a part of the overall company, mobility units receive lower discounts than large external customers. This is shortsighted, since preventing customers from moving to an intermediary can help maintain market power and customer access. It also helps safeguard downstream profits from financing, after-sales, and remarketing. Another factor to consider is that some non-captive mobility providers are both competitors and important customers for the parent company's vehicles. Situations like this require a delicate balance to both build a strong captive mobility position as well as to keep non-captive sales channels open.

The operational integration between a mobility unit and the core business must be managed pragmatically. The closer the mobility unit gets to the core, the better synergies should be in areas such as joint marketing, financing, and service. The risk of getting too close to the core is that mobility units often require different talent as well as the agility of a smaller unit. There will always be mobility units that need to keep a greater distance from other parts of the business – such as venture funds that invest in existing mobility start-ups. Exchange of customer data might make sense when seeking to provide the previously mentioned joint offers, but these must be limited based on customer preferences as well as legal requirements.

A potential bold move that the organization could make is bundling its mobility and downstream units. This would give the mobility unit more weight within the organization. Despite their high visibility and strategic importance, mobility businesses often lack the influence to push for their interests within the organization. Joint management can increase decision-making power and enable economies of scope. In addition, bundling of the various mobility units can enable streamlined management of mobility offers. Due to the high speed of development – including short test-and-learn cycles – it is not uncommon for an automaker’s mobility units to compete for the same customers. Closer integration in these situations would encourage better cooperation so that clear roadmaps can be developed that best support the automaker’s mobility value proposition.

### The future of passenger transport spending in Western Europe

Rapid growth expected for mobility services in the next 20 years



Note: Includes spending for intermodal travel; excludes potential effect of autonomous driving  
 Source: Oliver Wyman analysis, market model, annual reports and other publications





# THE NEXT HORIZON FOR AUTOMOTIVE AFTER-SALES

Fabian Brandt  
Marcel Springer

The global after-sales business has been a success story for decades and is a significant contributor to the financial strength of the automotive industry. Several challenges, however, will likely affect this lucrative sector in the future, calling fundamental principles into question. A new paradigm will be required to build service networks and offerings that truly meet the needs of tomorrow's customers.

For decades, the automotive after-sales business has been a tremendous success for many auto manufacturers and dealerships. Global after-sales revenue (service and parts) amounted to nearly €480 billion in 2014 and profit levels have improved consistently over the past couple of years. Market growth and profitability improvement have been driven partly by the expansion of the “auto park” in many markets but also through more sophisticated pricing of spare parts. Today, the after-sales business contributes as much as 50 percent to the overall profit of some automakers and more than 40 percent to the gross profit of large, full-range dealerships (despite accounting for only 10 percent of dealership revenue). The stability of the after-sales business also has proved vital for retail networks in times of economic uncertainty.

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# 50%

Amount of total profit generated by some automakers’ after-sales business units

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## CHALLENGES AHEAD

Automakers have invested significantly in the after-sales businesses over the past few years, resulting in improved customer satisfaction levels and service quality. In addition, many automakers have increased their share of after-sales business with existing customers by expanding their offerings into new areas such as tire replacement. The emergence of connectivity technology will provide automakers and their service networks with another powerful hedge against independent aftermarket rivals. Despite these advantages, however, automakers and dealerships will face a number of challenges in the after-sales sector in the future, particularly:

- Advancements in vehicle quality and the focus on active warranty cost management will lead to a decline in service demand per vehicle in most markets.
- Connected vehicles will open the door for remote services, causing dealerships and automakers to lose part of today’s service and parts revenue.
- Customer retention at many automakers continues to decline, especially for customers with older cars, who switch more often to independent service providers in search of more affordable service.
- Existing and new intermediaries continue to steer service business away from automakers’ workshops to lower-priced independent service stations.
- Large digital players, such as Ebay, Amazon, Alibaba, and Tencent, are looking for a share of the spare parts business, likely leading to declining margins once they have accumulated enough buying power.
- Independent dealerships such as CarShop and CarSense, as well as mobile service offerings such as ClickMechanic, are providing convenient, low-cost and digital/mobile-powered offerings to customers.

In addition to the factors mentioned above, the after-sales business has failed to fulfil one of its key promises: cementing customer loyalty through superior servicing, thus ensuring the person will purchase another car from the brand. Achieving this goal was the basis for building combined sales and service outlets, in the hope that the service business would generate leads that would benefit the new car business – but this has seldom held true.

## TIME FOR TAILORED OFFERINGS

Retailers in many industries have faced the challenges of intensified competition, revolutionary new technologies, a shrinking customer base, and increased price sensitivity. Their answer often has been to develop impressive service innovations, using IT-supported, big-data solutions to provide tailored offerings as well as differentiated branding and pricing. The automotive industry, however, continues to deploy a one-size-fits-all solution in terms of offering, pricing, service portfolio, and branding, with dealerships often located outside of population centers and with inconvenient hours.

## THE NEXT BREAKTHROUGH

Oliver Wyman believes that true customer orientation will be the next breakthrough in the after-sales business. This will lead to a tectonic shift in the structure of the automotive business, especially on the retail end. A key component of this shift will be the separation of delivery and fulfillment networks for after-sales service. Large-scale workshops in inexpensive locations, for example, could be used to consolidate service demand for a broad customer base. Such a strategy would ensure efficient, low-cost operations, leverage scale effects and lean principles, and dramatically improve the cost position for automakers and retail partners.

These “service factories” could be fed by pickup and delivery points placed in convenient locations for the customer, such as near public transport stations or shopping malls. Such locations could be better differentiated in terms of offering and branding than what is available today. While the transportation of vehicles between delivery points and service factories would add cost for the retail partner, Oliver Wyman’s research shows that this would be offset by the cost improvement in service execution.

## A NEW ERA OF NETWORK PLANNING

The investment required to restructure the after-sales service network would be substantial, but the risks associated with not making a change are likely to be much greater. With an operating margin of only two to three percent, even large, successful dealership groups have little room to absorb any shocks to their businesses. Given the challenges facing the after-sales sector as well as changes in the new and used car sales businesses, a revenue drop of just five percent or a further decline in profitability would create significant, structural problems for retail networks. If that happens, automakers will be forced to further support their dealerships to safeguard their sales and service networks. Oliver Wyman believes that now is the time to redefine the role of the different business units within the dealership and to begin a process of network planning based on disaggregation. Only then will automakers and dealers have the chance to actively manage their approach to the next horizon in the automotive after-sales business.



## MOBILITY 2.0: FINDING THE PERFECT MIX

Moovel GmbH, the mobility arm of Daimler, named Roland Keppler to the newly created position of chief operating officer in December 2014. The former Europcar CEO leads the business operations of Moovel's car-sharing brand, Car2go, worldwide and is responsible for developing corporate customer relationships and expansion to Asia. Moovel, which has invested in a number of transportation apps and services, aims to be the "Amazon of mobility." Keppler shared with Oliver Wyman his ideas for making "mobility 2.0" successful.

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***After initial rapid expansion and testing of new business models, mobility has started to grow up. What strategic directions do you see opening up for “mobility 2.0?”***

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Following on the global increase in smartphone usage and urbanization, we are noticing a growing interest in on-demand mobility and the use of multiple transportation modes. The smartphone is playing an expanding role in the integration of all mobility processes – not only by providing real-time information to the user, but because it enables booking, payment, and quick access to car and bike sharing. Smartphones likely will define future mobility. In addition, future mobility in urban areas will be an intermodal connected mobility. Flexible on-demand mobility services like Car2go or Mytaxi have already shown that they are the perfect supplement to traditional mobility services like public transport or car ownership, and could help reduce urban congestion and parking space shortages. The perfect mix of individual modes of transportation to get from point A to point B is basically what mobility 2.0 needs to focus on.

Geographically, the huge Asian market is very interesting for us: How will flexible mobility services be adapted there? Will the Asian markets jump directly from traditional transportation options and payment methods to on-demand mobility and mobile payment?

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***What is necessary to make the business weatherproof?***

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In my opinion, there are three factors: Great and seamless customer experience is key. And from a system point of view that works, it is simply there. No hustle is required, one only has to experience the benefits of individual mobility. After high customer satisfaction comes a reliable product – on-demand and available 24/7. And last but not least, vehicle utilization must be sufficient to ensure sustainable economics.

# MOBILITY 2.0: FINDING THE PERFECT MIX

INTERVIEW WITH ROLAND KEPPLER

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## ***What further differentiation do you see for mobility in the future?***

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Especially for flexible on-demand mobility services, easy and convenient access will be fundamental. Also important will be adapting mobility services to the local market and local infrastructure. The rapid development of new technologies and the evaluation of third-party data will influence the future of mobility in an intelligent way, as will the development of autonomous vehicles. All these changes will open up more opportunities for customers and for the business.

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## ***How strongly will mobility differ by region and in urban areas?***

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In the near future, large increases in traffic and population in urban areas are being predicted. More than half of the world's population already lives in cities. Intensive urbanization is taking place particularly in the Far East. We see a growing desire for individual mobility and intermodality. These trends were the reason we developed our on-demand car-sharing scheme, Car2go, as an urban mobility solution.

In rural areas, the concept of free-floating car sharing will not work – demand is just too low to sustain the large fleets required by this model. Station-based car sharing, however, is a mobility concept that can work in rural areas.

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## ***How do you see mobility and an OEMs' core business interacting?***

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Car2go is a small but growing part of Daimler's core business. The mobility services unit provides solutions for customers who don't want to own a car, but enables the OEM to continuously connect with them, as needs and desires change during people's lives. Car2go for example provides an alternative to private car usage for those who live downtown and who, at least for now, may not be able to afford a car, want to own one, or just simply don't need to have one most of the time. Car sharing also is a solution for

visitors to congested areas, who may not want to bring their own car into the city – it is easier to find an available parking spot with a Smart car or to save on parking fees.

Otherwise, there are still many reasons to own a car, like living in suburban areas, having a family, or needing to commute long distances. These customer groups can use Car2go as a mobility alternative as well.

An additional benefit for the core business is that every driver in a Car2go car is basically test driving a Smart fortwo vehicle. If customers decide to buy their own Smart car, we won't be unhappy about it.

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### ***Besides mobility, which other areas will be greatly impacted by the “sharing economy?”***

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The sharing economy has already become established in many different ways, such as sharing a car, a house, a bike, or household items. You find B2C or P2P models now for a great variety of shared things. The generation that is now growing up with such offers will be much more open to shared products or shared services. Therefore the sharing economy could also come to dominate, for example, other traditional areas like banking and finance or retail.

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As chief operating officer and a member of the management board of Daimler's subsidiary Moovel GmbH, ROLAND KEPPLER leads the business operations of the brand Car2go worldwide. In that position he focuses on global growth, developing corporate customers, brand strength, and expanding the company's offerings within the Car2go family. Prior to this appointment, he served as the chief executive officer of Europe's largest car rental company, Europcar Groupe S.A., and also has held various positions at TUIfly, TUI AG Group, and Preussag AG. Car2go is currently available in 30 cities in Europe and North America, with more than 13,500 Smart car vehicles.

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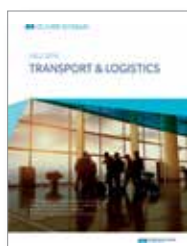
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