

# Influences of Global Changes to Evolution of Automotive Business

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## Abstract

This paper focused on the analysis of global turbulences affecting the worldwide automotive business. The article looks for the answers to how new social and technological trends will change the car industry value chain. These global trends include social media, new mobility solutions and provided services, the transition to renewable energy and many additional factors. The subject of the article deals with the different driving forces to development of the automotive industry. The introductory part of this paper describes selected trends that change the automotive business environment from the global point of view. The next part characterizes the description of key influences that are identified within the framework of analysis of the published studies about the acceleration of business in automotive sector.

**Keywords:** management automotive business trends, global changes, markets evolution

## Introduction

Globally, the automotive industry has recovered from the economic crisis. For more than 125 years this sector has played a key role in economic development and human progress. The car has shaped not only the global economy but also how billions of people live. The modern passenger car is a triumph of technology. New product concepts, new segments and growing environmental sustainability also lead to increased complexity. On the other side stagnation in Europe, globalization of sourcing and production, the regulatory demand for new environmentally-friendly propulsion engines or connecting vehicles to multi-modal mobility systems – that's just a few of the stimuli fundamentally changing the automotive industry today. New conditions are providing new opportunities for the automotive industry.

Analysis processing in this article is based particularly on identified trends of the automotive business presented in sector research studies. These challenges will shape the car industry into the future (KPMG 2014):

- Customers: the top priority for today's car buyers is a longer lasting vehicle (enhance vehicle lifespan) with low gasoline consumption (fuel efficiency) and active safety systems
  - 47 % of respondents consider use of alternative fuel technologies as critical to consumers' purchase decisions (interestingly, that down from 70 % in 2009)
  - 54 % believe under-25-year-olds do not wish to own a car; 46 percent say the same is true for over-50s.
- Globalisation: the emerging nations offer the best hope for expansion, as many traditional automotive markets continue to decline
  - 61 % forecast vehicle production in Europe to rationalize and move to emerging markets
  - 74 % of suppliers are beginning investment for new plants.
- Technologies: technology leadership is key to survival for automakers
  - connected car solutions are gaining importance year-on-year
  - 76 % believe that ICE (traditional internal combustion engine) down-sizing is the major focus for the automotive industry
  - plug-in hybrids are forecast to be the leading e-car
  - 69 % consider fuel cell mobility critical for future growth
  - will be used more platform sharing and more modular systems.
- Markets: mature markets are saturated, while emerging markets are rising in importance
  - 44 % are confident that China will export 2 million vehicles by 2016; 37 % predict India to export 1 million by 2016
  - 71 % expect online dealerships to be important and 63 % view multi-brand dealerships as a successful model.

Despite a recent recovery, the global automotive industry is bound to face uncertainty in the coming years.

### **The driving forces to the progress of the automotive sector**

Published reports (cited as references) confirm that the rising economic power of the emerging markets remains the overriding force for growth over the next decade. Markets and production are increasingly shifting to Asia. China has become the largest automobile nation in the world and this will lead to a gradual change in some of the key determinants of the industry (such as its impact on the profit and loss statements of many car manufacturers). In light of increasing urbanization around the globe (and related emission and congestion problems), the electrification of the powertrain is regarded as an attractive solution, and

China sees it as an opportunity to “overtake” established manufacturers in Europe, Japan and the US (Mohr 2013). The Chinese government is strongly supportive of electric cars as part of its longer-term plan to lower pollution in its fast-expanding cities, and reduce dependence upon fossil fuels. The phenomenal expansion of cities in China is putting pressure on the infrastructure and calls for radical solutions – urban vehicle design. One major growth opportunity is in smaller vehicles (subcompacts, microcars, and superminis) (KPMG 2014).

Manufacturers from China benefit from lower labor costs. Chinese players have massively increased their production capabilities. On other hand, Chinese manufacturers need to learn from their current limitations (namely poor quality, massive strengthening of R&D activities, missing branding etc.) (Semcon 2013).

Several key trends affecting automotive business presents tab. 1:

Tab.1: Global influences to adaptation of the automotive industry progress

KEY TREND	SPECIFICATION	
<b>OEMs</b>	<i>Global localization, Additional price pressure</i>	
<b>Competition</b>	<i>Emerging markets investors and suppliers, Selective consolidation</i>	
<b>Legislation</b>	<i>Connected vehicles, Further pressure to reduce carbon emissions, Zero casualties</i>	
<b>Emerging markets</b>	<i>Factor markets</i>	<i>Factor cost inflation, Oil price increase, Availability of skilled workforce, Rising energy costs</i>
	<i>Capital markets</i>	<i>Volatility of equity capital markets, Investor view of automotive industry</i>
<b>Standardization</b>	<i>Increasing use of platforms and standardization of modules</i>	
<b>Ice optimization</b>	<i>Downsizing and optimization of the internal combustion engine</i>	
<b>Fuel-cell e-mobility</b>	<i>Alternative powertrains</i>	
<b>European production</b>	<i>Rationalization of production in Europe and shifting of production to emerging markets</i>	
<b>Battery e-mobility</b>	<i>Increasing the efficiency and performance of batteries</i>	
<b>Finance and leasing</b>	<i>OEM captive financing and leasing</i>	
<b>Urban vehicle</b>	<i>Innovative urban vehicle design concepts</i>	
<b>Connectivity</b>	<i>Connected car technologies, car-to-x communication, digitalization</i>	
<b>Mobility</b>	<i>Mobility as-a-service, mobility solutions</i>	
<b>Self driving cars</b>	<i>Autonomous cars</i>	

Source: author’s adaptation according to KPMG and Roland Berger studies

As the industry becomes more global, automakers are striving to use flexible, modular platforms, to adapt to changing customer preferences. The next most critical global trend is the growing use of platforms and standardization of modules (Roland Berger 2013b). Well into the 1990s, major brands would build four or five different models off a single platform. But car buyers worldwide continue to be more and more demanding. Most automakers respond to this demand with an increasing number of derivatives subject to mark-ups compared with standard models. A modular approach can bring significant process

savings, enabling OEMs (Original Equipment Manufacturer) to produce larger volumes on common platforms. The 10 major OEMs will concentrate mass production across a few, core platforms (Royal Academy of Engineering 2013).

All leading car manufacturers are currently working on driver support technology (systems that warn the driver when they are leaving a lane, slow or even stop the car when an obstacle is identified or park the car automatically, for example), and some companies adopt a more radical approach that places driving in the hands of an on-board and networked computer. Vehicles are becoming ever more dependent upon software. The self-driving car on public roads becomes a real possibility in the future. The success of autonomous cars could change the auto insurance industry, for example (Oliver Wyman 2013).

The emergence of “applets” in smartphones and tablets has changed expectations about usability and the customization of the user experience among consumers aged 30 and under. The introduction of multimedia interfaces in cars marked a first step in response to “appletization” trend (Mohr et al. 2013).

The value of automotive electronics is rising; Internet connections and cloud services are becoming the norm, even in cars. Linking up cars with the Internet (“infomobility”) for car-to-infrastructure communication and ICT certainly offer enormous potential. Delivering services through the car – Internet radio, smartphone capabilities, information/entertainment services, driver-assistance apps, tourism information, and the like – is a promising area for future profits and differentiation. This current trend allows players from other industries to enter the market with innovative business ideas – especially companies from the IT and communications sector (Kleimann 2013).

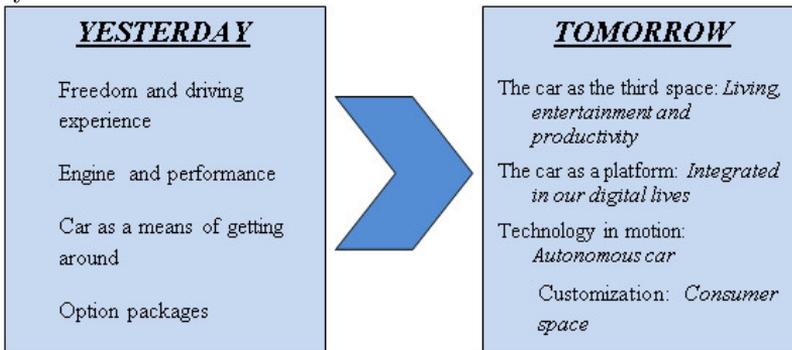
The data required for customized offers is continuously improving. For instance, telematics can automatically notify the manufacturer to send a message directly to a car or smartphone, reminding the owners that their vehicle is due for an oil change and recommend the preferred dealer and special products or service packages at the same time (Roland Berger 2013a). The latter makes it possible to provide tailored offerings via location-based services (geo-marketing). OEMs can provide wireless software updates that continuously create an added value for the customer during the complete car ownership cycle strengthening the bond with the brand. In the future, telematics will also be the basis for predictive maintenance, where the driver is automatically warned ahead of a severe failure. This service can include recommendations how to mitigate the problem with the preferred dealership or in urgent cases the dealer close by, which provides a unique opportunity to avoid a negative product and brand experience (Kleimann 2013).

The web is one of the most important contact points between OEMs and their clients. The Internet will play a greater role in providing customer information and dealer selling techniques (Roland Berger 2013d). New technologies have taken the customer much closer to a buying decision point before visiting the retailer. In the past, the only way to draw up a shortlist was to collect catalogues by visiting retailers. Today, via the Internet, the customer has often made product choices before entering the showroom. With car configurators, customers can specify their vehicles and have a good knowledge of

the list price. Customers are doing more and more of their pre-purchase research online. Now the buyer comes with very precise questions based on a lot of insider information (blogs) (IESE 2012). The core idea is closer direct engagement between vehicle manufacturers and end customers using sophisticated user-friendly technologies. Ongoing OEM/customer interaction would, however, quickly produce results that benefit not only production planning and forecasting, but also the vehicle manufacturers' brands and the development of the kind of vehicle technologies and features that customers want. Thanks to this direct contact, vehicle manufacturers too will be stimulated to drive greater synchronization throughout the business, particularly regarding inventories (Mohr et al. 2013).

The attributes of the traditional car will change, as show fig. 1.

Fig. 1: The most important changes affecting vehicles to future autonomous systems



Source: author's adaptation according to KPMG study (KPMG 2014)

The future of the automotive industry lies in aftersales. The growing number of cars on the road coupled with their higher average age confirms the importance of the aftersales business. The aftersales business is very profitable, e.g. aftersales services generated approximately EUR 30 billion in 2012 in Germany alone (Kleimann et al. 2013). This profitability is attracting a growing number of market players: manufacturers, suppliers, parts wholesalers, authorized and independent repair shops, repair shop chains, insurance companies, automotive banks, mobility services providers and Internet platforms. The aftersales player that best knows its potential customers can put together optimal product packages and accurately design its communication. Micro-marketing with a service offering tailored to each individual customer would be the ideal solution. The first step on this path is an in-depth understanding of customer needs, achieved through detailed segmentation. Customer service is of critical importance for the overall brand experience and driver satisfaction. Post-purchase there is a host of crucial customer touch points, and this is where manufacturers earn the loyalty of their customers. This is when customers decide to return to the same brand for their next car – or not (Kleimann et al. 2013).

The factor most likely to influence consumers' purchase decisions is environmental friendliness – demand greener vehicles (IESE 2012). The environmental issues are increasing in importance for consumers and legislators, press on automotive manufacturers to reduce emissions from their products. As a result, the traditional powertrain is being modified and new engines are being introduced (that pair high performance with lower emissions) and the electrification of the powertrain is progressing at the same time. OEMs will have to develop alternative powertrain technologies for lower-emission vehicles and this will require significant investment (Royal Academy of Engineering 2013).

While alternative new powertrains will even speed up the pace of change, young urban consumers are challenging the very concept of car ownership (a trend calling demotorization). They call for new mobility services such as carsharing and carpooling, which are already experiencing rapid growth (Semcon 2013).

Market studies (Roland Berger 2013d; KPMG 2014) show that the desirability of cars has fallen significantly among younger generations. The so-called 'millennial' generation of young adults appears less interested in traditional purchases (such as houses and cars), and the challenge for the main auto brands is to come up with a new way to meet their needs. While most young adults in the second millennium in their twenties aspired to owning a car, today's young people prefer car sharing (in all its forms) to having "their" car. This has significant implications for the whole automotive value chain, as presented fig. 2 (Roland Berger 2013c). Carsharing and taking a new look at personal mobility are two areas that have come in for special attention. The unique person-to-person (P2P) car sharing business model is the concept based on moving away from traditional car sharing logic to one in which infrastructure needs are met by the vehicle manufacturers and dealers. In this model, vehicle owners who only use their cars some of the time would be able to sign up to a program affording them a preferential initial purchase price plus the opportunity to rent the car out within the OEM's P2P system during periods of non-usage (Roland Berger 2013c).

Fig. 2: The impacts of car sharing strategy to players in automotive



Source: author's adaptation according to Roland Berger study (2013c)

A number of global trends are shaping the automotive industry. All these factors, mentioned in the article, add to the uncertainty facing car business in the first half of the 21<sup>st</sup> century. Results of the change automotive business environment analysis can be summarized in short (Mohr 2013):

- Consumer demands and new regulations will heavily influence the development of auto industry.
- The difficult market has already impacted OEMs margins.
- Alliances of OEMs and players from various sectors are an unavoidable answer to the current challenges in the automotive sector.
- Mobility solutions are increasing in importance (added new value in the passenger transportation of tomorrow).
- All major OEMs have plans for significant expansion in BRIC (Brazil, Russia, India, China) markets.

This analysis offers a perspective on where the automotive industry is headed. It is based on many published in-depth research studies.

## **Conclusion**

Drivers for change and technology development in the automotive industry are in many cases subsets of much wider issues that affect not only the automotive industry but also other activities and businesses. These broad issues include health and safety, environmental concerns and pollution control, climate change, and the potential or actual scarcity of resources. The degree to which one or other of these issues takes priority varies over time.

Many of the changes that will demand innovation in terms of the vehicles that we use, however, are to do with lifestyle choices and personal convenience. Issues such as congested roads, inner cities with limited parking spaces and the sheer cost of running your own car are social factors that are likely to have a significant bearing on future vehicle development. Potentially, automotive industry customers of the future will be buying mobility rather than a car as such: the vehicle may be just one of several options to get from A to B, and may not be the most flexible of those options.

At the same time, the technology revolution of the Internet and mobile devices has also had an impact on automotive sector.

Automotive companies are adapting to a fast-changing competitive landscape. In this article the most important impulses of progress in automotive for the following years was presented. The trends listed above are trends that will affect the whole automotive industry, including distribution and sales.

## **Acknowledgement**

This contribution is the result of the project “VEGA 1/0879/13: Agile, to market adaptable business systems with highly flexible structure in enterprise”

– supported by the scientific grant agency of the Ministry of Education of the Slovak Republic (ME SR) and of Slovak Academy of Sciences (SAS).

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## Vlivy globálních změn na rozvoj automobilového odvětví

Příspěvek je věnován popisu problematiky budoucího vývoje automobilového průmyslu. Je zaměřen na analýzu některých akceleračních vlivů a globálních turbulencí na automobilový sektor. Článek specifikuje odpovědi na otázku, jak nové sociální a technologické trendy mění hodnotový řetězec pro automobilové odvětví. Z globálních trendů jsou za hlavní hnací síly považována sociální média, nové koncepty mobility a řešení poskytovaných služeb, přechod na obnovitelné zdroje energie a mnoho dalších faktorů. Nosným tématem článku je analýza podnětů pro budoucí směřování automobilového průmyslu. V úvodní části jsou popsány vybrané trendy, které z globálního hlediska zásadně mění automobilové podnikatelské aktivity. Následně další část příspěvku obsahuje charakteristiku hlavních vlivů, které byly identifikovány na základě rešeršního studia publikovaných zpráv od renomovaných organizací o predikcích rozvoje automobilového průmyslu.

**Klíčová slova:** automobilový průmysl, trendy, globální změny, vývoj trhů

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LEŠKOVÁ, A. and D. SABADKA. Influences of Global Changes to Evolution of Automotive Business. *Littera Scripta*. 2014, 7(1), 50–59. ISSN 1805-9112.

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