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## The car aftersales market development trends in the new economy

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### Abstract

The new economy is characterized by knowledge, information and communication. One of its elements is e-commerce. New entrepreneurship models and new terms have originated in the car aftersales market: B2C (Business to Customer) online sales, car service online portals, M2M (Machine to Machine) communication, car sharing services, e-mobility, connected car. A car starts more and more to resemble a computer on wheels. In addition, not only are automotive technologies essentially changing, but also the habits of drivers. Today, the car aftersales market is poised for enormous changes and in the near future the industry companies will have to adjust, and use business models, and opportunities created by the new economy in order to keep being competitive, and to develop successfully. This article discusses the car aftersales market development tendencies in the age of a new economy and technologies.

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*Keywords:* car aftersales; aftermarket; car service; automotive aftersales.

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### 1. Introduction

With new car sales volume and profit being reduced, the aftersales market has become a significant source of profit for car manufacturers and their dealers (Gissler, 2008), and it has grown to be a more important entrepreneurship model for car and original spare parts manufacturers (Jonke, 2008). However, it is rapidly changing with new entrepreneurship models and terms: B2C (Business to Customer) online sales, car service online portals, M2M (Machine to Machine) communication, car sharing services, e-mobility, and connected car. A car more and more starts to resemble a computer on wheels.

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**Problem.** In the near-term future the industry companies will have to adjust and apply the business models and opportunities created by the new economy in order to maintain competitiveness and to develop successfully. Car aftersales services providers will have to offer not only car repair but also various new mobility services.

**Purpose.**

To analyze and discuss scientific literature on the topic of this publication and to outline car aftersales market development trends in the context of the new economy.

**Tasks:**

- to characterize the new economy, e-commerce and M2M communication in the car aftersales market
- to outline car aftersales market development trends in the new economy.

## 2. New economy

At the end of the 20<sup>th</sup> and the beginning of the 21<sup>st</sup> century the development of technologies has essentially changed not only habits of residents but also business, including the car aftersales market. We cannot imagine our life without a computer, its software and internet. Cars more and more start to resemble a computer on wheels. Today, a contemporary car has up to 50 control units and their number continues to grow. In the not too distant future, cars will start to communicate among themselves, and it is possible that in the near future they will order spare parts and service time online from a workshop computer without human help. New terms have originated in economic literature and practice: information society, electronic (e-) commerce and the “new economy” which will impact further global progress (Skribans, 2001). We also see such terms as “knowledge economy”, “online economy”, “innovation economy”, “post-industrial society” etc.

The new economy uses the most recent achievements of computer technology, telecommunication and satellites creating new interactive media. Mainly, it is the result of computer industry activities, but also due to a reduction of country regulations and liberalization in the government owned telecommunication companies (Graham, 2004).

The authors agree with the view of Kelly (1998) who thinks that the new economy is not about computers because most opportunities that we can expect from a computer, as a machine only, have been utilized and created. Computers have made our life faster, made writing and calculation easier, but the computer purely as an item of equipment does not have other transformational consequence.

Shy (2001) adds that computers cannot be used without attached monitors and software ensuring their operation; CD readers cannot be used without CD disks. In short, supplemental items are needed. The consumer buys those supplemental items more often than the entire system as a total package. For example, computers and software, or CD readers and disks, can and are purchased separately (Shy, 2001).

Monti (2004) believes that in the new economy markets are characterized by two other dominance risks: network effect and log-in effect. For example, if more and more people use a fax machine, it becomes more valuable to each of the users because there is an opportunity to communicate among each other (network effect) (Monti, 2004).

Sky postulates that if it is very expensive to invent and create some specific software, but its further reproduction costs are comparatively minor or none, that such a circumstance facilitates domination of only one company or software in the market. Companies have high fixed and low variable costs in order to produce some product or a service. That makes it difficult for new enterprises to enter the market. Hence, a few or even only one company can dominate an industry.

Kevin Kelly (1998) thinks that the new economy is about communication, which is at the basis of society, its culture, and mankind generally, and each of us as an individual or as an economic system. However, Graham (2004) says that new economy is not only about communication but, today; in addition, by using electronic channels, it is the main supplier of goods and services.

Clarsson’s (2004) opinion is that speaking about the new economy, it is necessary to separate information and knowledge. He defines information as the data collection and knowledge as a structure (a theory or hypothesis), which makes possible the analyses of the information. The authors agree with this approach because one cannot use information without knowledge. The information itself is not anything new - what is “new” is merely the form of the way it is saved, moved and collected (Clarsson, 2004). If in the old economy the information was more in paper form, photographs, maps, etc. – today it is digital and we find a large part of our information by using a computer.

Clarsson's (2004) believe that the new digital economy will generate new activities and higher productivity; it will take online use to a new level, and ensure communication among economy participants and the exchange of ideas.

With the new economy we understand such a model of economy where information and knowledge has a significant meaning in the overall national economy processes and where learning the information and gaining knowledge will result in a speedy increase of labor productivity (Skribans, 2001).

Summarizing the aforementioned, the authors would define the new economy as knowledge, information and communication. However, we have to also agree with the researchers Carayannis and Sagi (2001), that a significant portion of researchers forget that today's economy is also taxes and control, various permits and regulation mechanisms, strong and large companies, monopolistic competition, legislation of the countries and very confidentially kept secrets. European Commission Regulations are one glaring example of what can affect (directly) the competitiveness of car aftersales industry companies.

The authors agree with the opinion Skribans (2001) and Castro (2013) who believe that **e-commerce** and internet are important elements of the new economy. Skribans (2001), and the Ministry of Economics of the Republic of Latvia in the Conception on electronic commerce specify the 3 major participants of electronic commerce – the state (government), companies (business) and end consumers (customers), thus obtaining the following 9 variants of electronic commerce:

- G2G (government to government)
- G2B (government to business)
- G2C (government to customer)
- B2G (business to government)
- B2B (business to business)
- B2C (business to customer)
- C2G (customer to government)
- C2B (customer to business)
- C2C (customer to customer)

However, taking into consideration the rapid development of technologies, the authors adds one more type of e-commerce - M2M (machines to machines). Machines to machines communication, known also as M2M or telemetry, connects equipment or machines, which are located in any country in order to be able to simultaneously supervise and manage, providing companies with current, updated information. M2M changes the way international companies work, essentially improving effectiveness and reducing costs (Vodafone Machine-to-Machine). M2M commerce is data exchange/flow among computers and ultimately among computers and people (consumers) (M2M communications).

M2M technology as a business has originated due to the observation that in the world there are more machines and items than people and those machines and items have much larger value if they are connected in a network (Krishnamurthy, Anson, Sapir, Glezer, Rois, Shub & Schloeder, 2008). Thousands of companies worldwide rely on M2M communication, yet the largest portion of the world computers and machines are not yet connected (Cronin, 2010).

Summarizing Clarsson views (2004), the authors think that that the main advantages of electronic commerce are:

- reduction of personnel costs (training, job allocation, shift work)
- end consumer can purchase the goods/service at any time and place, using self-service online platforms.

Electronic commerce promotes international trade and increases its volume. It will directly and indirectly create new work places at the same time reducing their number. It is expected that new jobs will be created in the area of information technologies and communications (Terzi, 2011).

In addition, the new economy has industries where electronic commerce also changes the traditional way of goods delivery, e.g. having a data base to obtain a book in digital format, or music/movies listened to or watched online instead of on a CD disk.

**Social commerce** is an emerging category of e-commerce, based on social media platforms like social network services. Social commerce has grown rapidly in the past 3 years, and more customers, business partners and investors have joined the industry (Kim, 2013). Virtual community participation and user-generated content are the prevailing social activities in virtual spaces. Along with such trends, word-of mouth transactions have also increased dramatically (Yoo, Sanders & Moon, 2013). Consumers now use blogs, search engines, internet communities, social media, consumer review systems and online instant messenger services to gather and disseminate product information; accordingly, word-of mouth information on the internet has become an important information source for shopping (Yoo, Sanders & Moon, 2013). Despite the growing industry and research emphasis on social commerce, there is only a limited theoretical understanding of the main issues, and even less substantive empirical grounding on how social media and social networking can be leveraged to enhance e-commerce (Zhoua, Zhang & Zimmermann, 2013) In the opinion of Li, Wu and Lai (2013), for many people, shopping is a social experience, and they often want to get their friends' opinions before buying. Social commerce is helping people buy where they connect. It integrates social media into e-retail sites and adds e-commerce functionality to social networks. When shopping online, people tend to seek the suggestions and help of similar people, shopping experts, and close friends. (Li, Wu & Lai, 2013). E- word-of mouth has become an important part of the online shopping experience (Yoo, Sanders & Moon, 2013). Social commerce continues to evolve rapidly in response to business practice, IT advances, changing consumer demand, and the insights gained from user-generated content (Zhoua, Zhang & Zimmermann., 2013)

Digital technologies have also negative effects. In the opinion of McGrath (2012) digital technologies also lead to social isolation and a growing privatisation within the household. Thus, digital technologies are negatively affecting social interaction and communication between individuals. In order for digital technologies to positively impact on social interaction within a household, family members must use these devices as a way of communicating and interacting with one another (McGrath, 2012). Capriotti's opinion (2009) is that the information society, or knowledge-based era, brings challenges and opportunities to the employee communication process also. New technologies are creating new channels of communication within organizations, and they are also modifying the old means of communication. Just as importantly, they are changing the way that organizational communication is now understood (Capriotti, 2009).

In accordance with Wolk (2013) after sales experts aftersales market has B2C online development and shows an increase of its market share. Wolk (2013) explains: historically, in the aftersales market the first step of online companies were online platforms or stores where the end consumer could purchase car spare parts. They were delivered to the address indicated by the buyer, usually, a place of residence, which means that the buyer has to additionally find a workshop which would be able to replace these spare parts and has to agree on the time and price. It means that this service is convenient only to these drivers who conduct the car repair themselves. The next step in the development of online companies is online spare parts stores which offer not only to purchase them but also to choose one of the workshops in the data base and to deliver the spare parts to the selected car workshop instead of the buyer's residence. Thus, an inconvenience of receiving spare parts and then bringing them to a workshop will be eliminated but a driver still has to contact the workshop and agree on the time and price of the repair (Wolk, Frolich & Wolk, 2013). Currently, topical and new tendency is "service portals", where a package price is offered to a driver (spare parts + workshop services). It means that a driver can choose online the desired distance to the workshop, a service (for example, oil change) and to see and compare offers, and to reserve the service online. Portals will also have feedback from clients. In the author's view, in the future such portals will develop rapidly similar to what happened in other fields, such as with plane tickets and hotels. More drivers will use service portals to reserve car servicing and repair (Wolk, Frolich & Wolk, 2013). However, the authors think that an obvious limitation on the use of portals is a given driver's knowledge about a car - most drivers do not have enough skills and ability to diagnose the car problem and order the necessary repair work. Therefore, the authors believes that service portals need to specialize in repairs which are easy for the drivers to understand, e.g. maintenance oil changes or replacement of brake pads.

In accordance with the study (Cars Online 11/12 ..., 2011) by the company Capgemini, drivers mostly purchase tires and automotive batteries online. They are interested in purchasing accessories also which are comparatively easy and fast to install, for example, mats and seat covers. Drivers are not willing to purchase online special bulbs, security systems, accommodated rims or spoilers (Cars Online 11/12 ..., 2011). A large part of drivers (85%) of

those who are searching for spare parts online, after finding and researching them, purchase the spare parts by using the traditional purchase channels, for example, at the spare parts wholesaler (The 2010 Automotive Aftermarket ..., 2010). So, the volume of traditional sales is enhanced by the online spare parts search effort.

Consultation company Capgemini has studied connection of the consumers to purchase channels (digital and traditional) and believe that consumers are not any more loyal to any of shopping channels but more to their experience. However, most consumers who prior to making a purchase had done research in a digital shopping channel have said that they will more likely make a purchase in the traditional shopping place (Digital Shopper Relevancy ..., 2012).

### 3. Aftersales market development tendencies in the new economy

Pemberton Associates (Far Horizons managing ..., 2010) projects that the total volume of cars in the world will increase from 1.02 billion in 2010 to 2.28 billion in 2050 and 3.06 billion in 2100. The car aftersales market and its growth is positively affected by an increase of the number of cars; however, there are also negative factors.

In accordance with the studies (Connet, Gruntges & Zielke, 2008) conducted by the consultation company McKinsey the main negative factors affecting the car aftersales market are:

- car maintenance intervals increase (if in the recent past maintenance had to be done in every 15000 km, then modern cars often need maintenance every 30000 km or even less frequently)
- reduction in the number of accidents which affect the demand for body repair services
- increase of car spare parts quality – as a result they need to be replaced less frequently

The noted negative factors affecting the car aftersales market cannot be completely outweighed by positive ones, such as aging of a car park, increased use of expensive tires, individual tunings of cars and purchase of various accessories, including entertainment (Connet, Gruntges & Zielke, 2008).

Authors agree with Connet, Gruntges and Zielke (2008) that aftersales service costs and aftersales market volume continues to grow, because of:

- increase of costs of individual car components (usually electronic) and
- service providers' equipment, for example, electronics diagnostics
- the industry moving towards change of modules instead of separate car spare parts which cost significantly more.

The increase in the average age for cars on the road mean they are being used longer, but also there is a greater possibility that (long-term) these cars will need bigger repairs regardless of their quality improvement (Connet, Gruntges & Zielke, 2008).

Consultation company KPMG in the study Global Automotive Executive Survey 2012 (KPMG's Global Automotive ..., 2012), specifies the following major future problems and trends in the car industry:

- environmental issues – fuel economy and friendliness to nature is valued as the most important product problem, which means reduction of combustion engine volume and electro mobility, fuel cell engines and also the use of lighter materials in cars
- urbanization – traffic jams and limited parking space will be the main future problems in large cities. There is a tendency for innovative car concepts where lighter materials and mobility services would be used
- client behavior/habits are changing, car drivers want to use a car instead of owning it (lease, rent or car sharing) and the drivers expect to receive in the car the same services as at home or an office or by a smart phone. In the future the car manufacturers will offer financing or leasing, connected car concept and mobility services

ExxonMobil projects that that the proportion of **hybrid cars** in the car park will start to increase only after 2025 when they will become cheaper. However, in 2040 hybrid cars will reach about 40% of the car park (The Outlook

for Energy ..., 2013). Consultation company KPMG in its study Global Automotive Executive Survey 2012 indicates that electric cars will not exceed 15% of the first time registered new cars sooner than in 2025 and that currently it is not clear which car technology will dominate in the future (for example, hybrid, fuel cell or electric cars). KPMG study proves that in the nearest future electric cars will not replace traditional combustion engine cars. The authors agree with the view that traditional combustion engines are still the most comfortable solution and they have a future potential. A combustion engine car (in particular, diesel engine) with a full fuel tank can go distances which exceed 1000 kilometers due its effectiveness and a low fuel consumption. A modern combustion engine can be used in temperatures lower than  $-25^{\circ}\text{C}$  and higher than  $+40^{\circ}\text{C}$  (Annual Report 2011, 2011).

More and more people live in cities with their population continuously growing and thus every day facing mobility problems. Quite often a car is not the fastest way of transportation and various authors offer to use various ways of transportation or **mobility as a service**. Consultation company KPMG (KPMG's Global Automotive ..., 2012) describes the following future large city mobility vision: a city resident using a smart phone finds the nearest car sharing electric car, and using the same smart phone opens the car doors and starts the engine. The car immediately informs about the traffic in the city streets and gives the train schedule, one can check e-mail and listen to favorite music from a smart phone. Then a driver can continue driving to the train station and further travel by train or plane, and at the end destination he again uses car sharing. Each stage of travel (including vehicles) were ordered and paid by using one mobility provider.

One example for mobility is the Daimler's mobility platform model, which shows to the user the fastest way and transport to get from point A to point B.

The survey conducted by the International Consultation company KPMG (KPMG's Global Automotive ..., 2012) determined that currently car repair and maintenance is not as profitable as in the past and car manufacturers' dealers have to look for other ways to earn money. For example, by car leasing and car sharing.

72% of respondents see in the future not only a car but mobility as a service which would include alternatives to owning a car. The consultation company Capgemini in its study Managing the Change to e-Mobility (Managing the Change to e-Mobility, 2012) outlines that in the future e-mobility and not only electric cars as a product will be requested from end consumers. The end consumer will want to receive various kinds of mobility services – by cars, trains and planes. E-mobility in itself mainly includes the use of electric cars for various purposes and mobility concepts. In a broader sense the term is associated with switching to a new network which will be comprised of the existing and new automotive industry companies (for example, e-mobility and information technology services providers and battery charging or exchange services), which together will supply and create car industry offering various services and products (Managing the Change to e-Mobility, 2012). KPMG believes that the car industry has to change from being car-oriented to person-oriented and has to offer to urban residents various mobility solutions.

KPMG study shows that in 2026 in Western Europe 6%-15% of urban population will use mobility services, and that in the future more and more people will be car sharing or leasing a car instead of purchasing it. The car sharing service users, with the help of internet or a phone, have an opportunity to order 24 hours and to use car sharing vehicles which are placed in car sharing parking throughout all the city. Service users can receive and return cars to parking sites without the presence of the service provider by using a smart card and a code (Richter, 2012). In the author's view, in the Baltic countries, the criminal situation and irresponsibility of people, when using a car sharing vehicle, will be hindering factors for development of those services. A few examples of what could go wrong: intentional damage of a vehicle, using a car sharing vehicles in car racing sport, and the hiding of damage which can make the next user liable if he does not notice the damage.

GSMA study 2025 Every Car Connected: Forecasting the Growth and Opportunity has the following hypothesis: in some time in the future each **car will need to be connected** to the outer world by a cellular network. The main obstacles: the unwillingness of drivers to pay for additional communications and equipment costs, and also the fact that currently they are more interested in using smart phones.

Most of the automotive software, using various equipment and communication technologies offer to drivers the following services: diagnostics, security, safety, entertainment and navigation (Bourgeau, Chaouchi & Kirei, 2013).

One of the largest telecommunication operators, Vodafone, says that in the car industry M2M has large opportunities for development. It would also reduce variable production costs by improving the effectiveness. Vodafone offers the following M2M communication solutions in the car industry:

- vehicle relationship management (VRM)). It changes client relationship management and creates and opportunity for car manufacturers or their authorized dealers to offer drivers services with a high added value
- car park management systems
- insurance based on driver's habits when using a car
- safety, security, immediate and technical assistance services
- information services (for example, the information about traffic jams)
- car diagnostics and servicing from distance (for example, car self-diagnostics, identification of car defects before they originate)

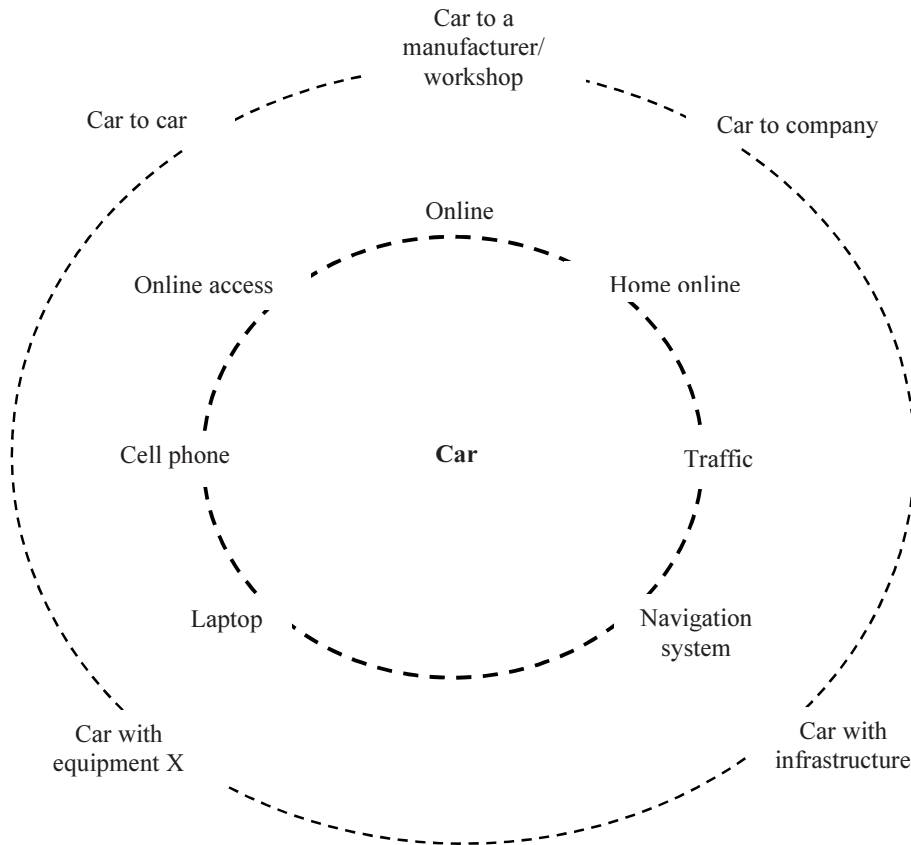


Fig. 1. Connected car. Source: Authors construction in accordance with KPMG's Global Automotive Executive Survey 2012, 2012

It is projected that in 2015 – 20% of all the manufactured cars will include communications solutions (Connected Car Forecast ..., 2013).

- more than 50 percent of the manufactured and sold new cars will be connected online (built in or by smart phone)
- starting from 2025 each manufactured car will be connected in a network, using various solutions.

GSMA (2025 Every Car Connected ..., 2013) indicates that in a longer time period the following will be in favor of a car connected in a network:

- an increase of the European Union instructions and normative acts in the automotive telematics (for example, e-call)
- reduction of telecommunications costs in the future
- possible use of various software currently used in phones without a smart phone itself in the car

The authors agree with KPMG (KPMG's Global Automotive ..., 2012) that currently a connected car (Fig. 1) and entrepreneurship opportunities created by a connected car are still not valued, in particular, taking into consideration that the new drivers' generation expects to use in the car the same equipment they can use at home or in the office, including music, telecommunications and internet.

KPMG describes the following connected car connections (KPMG's Global Automotive ..., 2012):

- a connection car (Fig. 1) to car will increase traffic safety because cars will be able to transmit information to each other on dangerous situations on the road, for example, a slippery road
- a connection car (Fig. 1) to manufacturer/workshop means that technical problems can be diagnosed and even solved from a distance, for example, software update
- a connection car (Fig. 1) to a company offers new entrepreneurship opportunities for various industry companies starting from fuel filling stations or car park management companies to new online services
- a connection car (Fig. 1) to infrastructure – traffic jams and red traffic lights can be recognized before they are reached
- a connection car (Fig. 1) to an equipment X – a car can be connected to any equipment with online access

The eCall is one of the examples in the car industry where new technologies will operate – the car (machine) will automatically contact rescue services. It is planned to introduce the eCall in all the territory of the European Union - in case of an accident the cars with installed eCall system, without the help of the driver, will contact the nearest medical emergency center and will transmit the data, which will include an accurate location of the car - this way making an emergency help more speedy and easy (eCall: Time saved = lives saved).

The first car being fully online – e2o (connected car) with M2M technologies is an evidence to the possibility of M2M communication and services in a car industry (Vodafone Powers Mahindra ..., 2013).

In the early stages of M2M the companies identify two major obstacles for implementation: high costs and concerns for data safety. Companies, which already had started to introduce M2M solutions, mention as one of the main problems the long period of time necessary to earn back investments. On the other hand, most companies that have introduced M2M solutions had successfully recovered investments and do not see any obstacles for further M2M development (The M2M Adoption Barometer 2013, 2013).

The author agrees with Vodafone and Cronin, who outline that M2M industry has large opportunities for growth and a huge potential. As to why M2M communication is not currently growing as fast as a number of computers and machines, in accordance with Cronin's view, the author's points to the lack of global standards and the large initial investment. Lack of standardization, as one of the M2M growth problems, is mentioned also by other researchers (Bourgeau, Chaouchi & Kirei, 2013). Cronin projects that low cost and a better quality wireless connection will reduce some of the obstacles for M2M growth. The development of M2M communication, in the author's opinion, will be facilitated by the European Commission telecoms market reform plan adopted in 2013. The reform would reduce consumer's payments and bureaucracy - it will positively affect users and service providers. It will allow Europe to become the world leader in the digital development field (Commission proposes major ..., 2013).

Within the context of the new economy and M2M communication/commerce **industrial robots** should be included as the M2M system members. Currently, a large share of work volume necessary to manufacture a car, is done with a help of industrial robots which also successfully communicate among themselves. Since 2010, the automotive industry – the most important customer of industrial robots – has considerably increased investments in industrial robots worldwide (Industrial Robot Statistics). It is expected that in the nearest years the household and professional services robot market will increase by 40%, with the fastest growth in rescue, safety and professional cleaning market. By 2020 the service robotics market volume could increase to more than 100 billion euro per year. It must be noted that robotics industry receives a reasonable support from the European institutions and in the prior



five years the European Commission had provided about 600 million euro to more than 120 robotics research projects. (Digital Agenda: Commission ..., 2012).

Today, 70% of industrial robots are working in car manufacturing and mainly in body shop and painting units. Currently, industrial robots are separated from workers in production processes (Broks, 2013). It must be noted that installment and programming costs of industrial robots significantly exceed the costs of a robot itself – hence, highly qualified software programmers and engineers are and will be in demand.

Traditional industrial robots are too expensive and too large to be used in a small volume production of service providing and, therefore, new generation small industrial robots are developed and offered in the market – they operate with the help of sensors (Knight, 2012).

There is a belief that with the new economy era – the country and geographical borders may lose their importance. Savrula and Kılıçb (2011) believe that globalization leads to a change in virtually everything related to politics, culture and economy. After World War II, production developed very fast in Japan then it moved to South Korea, Taiwan and China –and here one undoubtedly has to agree with Broks (2013), that one of the reasons for production development was availability of cheap labor in those countries and that production in a contemporary economy is constantly moving to countries with cheaper labor. There are studies showing that the Asian economic potential is growing and, that China and India will revisit their economic positions which they had a few centuries ago, when China produced about 30% and India 15% of all the world goods (Global Trends 2025, 2008). Currently, China is a car manufacturing leader (15495240 cars in 2012) and it has become the largest car manufacturer in the world. The China production increase, 2005 compared to 2012, is 290%, then follows India (increase rate 151%), Brazil (increase rate 108%) and Russia (increase rate 81%). China has also the largest sales market for passenger cars (Statistics of car production). However, other authors (Jack, 2011) believe that China in the future does not have significant growth potential, with more growth expected in Turkey, India, Indonesia and Mexico. The demographic situation and working age population decline due to the one child policy are some of the reasons for slowing down of the growth speed in China.

Brooks (2013) believes that small industrial robots provide an opportunity to the developed countries to maintain production and to discourage manufacturers from the constant search for cheap labor and moving of the production to countries with cheap labor. It must be noted that in accordance with the International Robotics Federation's statistics – in 2011 (compared with 2010) the sales volume of industrial robots in Europe increased by 43%, including in the car industry – by 66%. In 2011 – 43 800 new industrial robots were sold in Europe (Industrial Robot Statistics). It means that already now European production companies replace cheap and imported labor with industrial robots and thus they are able to compete with the companies which move production to cheap labor countries.

The author agrees with Brooks (2013) saying that small industrial robots in the future will change not only production but also providing of services. Researchers Broks (2013) and Castro (2013) think that already in the next decades the importance of industrial robots and M2M communication will only increase because the society ages and the current residents at working age will require increase of productivity and one of the solutions for that are industrial robots and M2M communication.

Likewise, the author agrees with researchers Carayannis and Sag (2001) saying that in the global market the information technology companies alone cannot create products and compete with production companies which receive the country support. As an example could be mentioned the car manufacturers, which, regardless of the significant profit receive an essential support of the European Union in creation of innovative products, and also car manufacturers themselves are able to support introduction of the product. It means that for products to be successful in the global market the information technology companies would have to create the products in cooperation with the car or spare parts manufacturers, which would support not only the developing of the product but also its introduction and practical use.

In author's view the evidence of a significant change in the aftersales market is also the fact that car manufacturers, using new technology opportunities re-focus not only to B2B entrepreneurship but to **B2B+B2C entrepreneurship**. For example, Tannou and Westerman (2012) describe Volvo (car manufacturer's) services which are provided not through authorized dealers but directly to end consumers (car drivers). Volvo, in addition to

traditional services, has introduced a new digital services set, for example, road assistance, stolen vehicle tracking, remote services such as car door control (Tannou & Westerman, 2012).

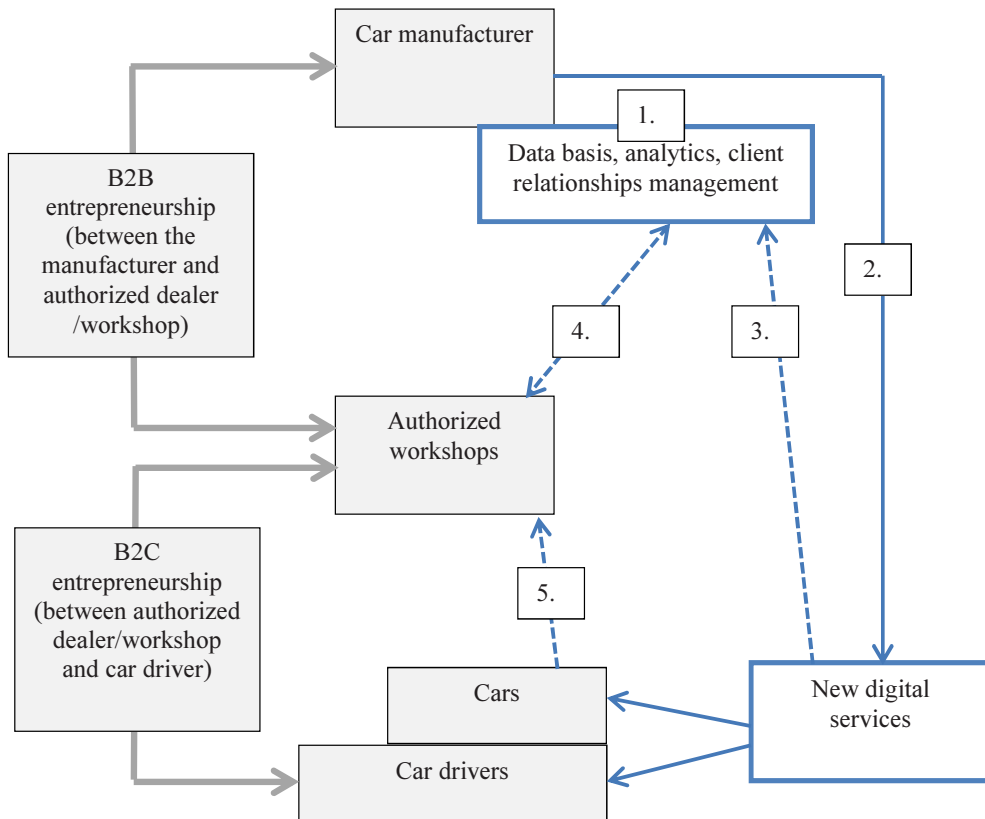


Fig. 2. Traditional and new entrepreneurship between a car manufacturer and the end consumer.

Source: Author's construction in accordance with Tannou.& Westerman, 2012

Figure 2 shows a traditional and a new entrepreneurship model and the information exchange between a manufacturer and a consumer. In the new entrepreneurship model (Tannou & Westerman, 2012):

- data basis are being created (Fig 2; No. 1) in order to communicate with authorized dealers and to collect information
- new services are delivered directly to a car driver (Fig.2; No.2) – cars online, mobile services etc.;
- feedback after services (Fig.2; No.3)
- more precise information exchange between the car manufacturer and its authorized dealers (Fig. 2; No.4)
- stronger link between drivers and authorized workshops (Fig. 2, No. 5)

#### 4. Conclusions

Studies show that car aftersales service costs and aftersales market volume continues to essentially grow because increase of costs of individual car components, service provider's equipment and the industry moves towards replacement of modules instead of separate car spare parts.

Currently, there is no clear car technology which will dominate in the future - for example, hybrid cars, fuel cell or electric cars. Studies show that in the nearest future electric cars will not replace cars with combustion engines and traditional combustion engines are still the most comfortable solution. A combustion engine car (in particular, diesel engine) with a full fuel tank allows to drive distances which exceed 1000 kilometers and for the time being it is not matched by any other alternative car technology.

Studies show that car repair and maintenance is not as profitable as in the past and companies should have to look for other ways how to earn money. Companies have to change their focus from a car-oriented to a person-oriented business and to offer other new services, for example, various mobility solutions to urban residents.

A connected car and M2M solutions have large opportunities for development in the car aftersales market. Examples include vehicle and relationship management, and car diagnostics and their servicing from distance.

In the future, in order to grow successfully, car aftersales market companies will have to simultaneously use traditional and new entrepreneurship models, for example, B2C and B2B entrepreneurship, traditional car repair services, M2M communication, connected car service and mobility services.

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