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Abstract

The Master thesis is deeply dealing with the analysis of the role and the influence of informational services in the sector of sharing economy on the examples of the most-known platforms, namely Uber and Airbnb. The main purpose of the thesis is to observe the impact of informational services on the technological, socio – economic, and environmental factors, which are considered to be driving forces of the sharing economy, resulting in the expansion of the sharing economy platforms in the last decades. The result of the thesis is summarizing of the impacts of the technological revolution that caused the disruption of traditional business models.

Key words: sharing economy, business models, Uber, Airbnb, information and communication technologies, informational services

Abstrakt

Die Masterarbeit beschäftigt sich tiefgreifend mit der Analyse der Rollen und Einflüsse von Informationsdiensten im Bereich der geteilten Nutzung, im genaueren Uber und Airbnb. Der Hauptnutzen dieser Arbeit ist die Beobachtung der Auswirkung von Informationsdiensten auf technologische-, sozialwirtschaftliche- und Umwelt-Faktoren, die leitenden Kräfte der „Sharing Economy“ und die daraus resultierende Ausbreitung von Plattformen der geteilten Nutzung im letzten Jahrzehnt. Das Ergebnis der These ist die Zusammenfassung der Auswirkung der technologischen Revolution, die eine Störung der traditionellen Geschäftsmodelle zur Folge hat.

Schlüsselwörter: geteilte Nutzung, Geschäftsmodelle, Uber, Airbnb, Informations- und Kommunikationstechnologien, Informationsdienste

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List of abbreviations

API	Application Program Interface
B2C	Business to consumer
C2C	Consumer to consumer
ETA	Estimated time of arrival
eWOM	Electronic word-of-mouth
GPS	Global positioning system
ICT	Information and communication technology
iOS	iPhone operating system
IoT	Internet of Things
IS	Informational services
IT	Information technology
SMA	Social media analytics
TRI	Technology readiness index
WOM	Word-of-mouth

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1. Introduction

The principle of renting the things or providing small services is a common phenomenon that has been an indispensable part of humans lives since immemorial. The emergence of modern information and communications technologies (ICT), due to the highly evolving market environment that has developed rapidly in the recent years, a shift in the value of a young generation and a desire to discover new, unconventional opportunities made the sharing economy a phenomenon of the last decades. The ease of access to the Internet and the innovativeness of sophisticated encryption systems have enabled the security and versatility of the tool to deliver any services or products through the web, attracting new types of market players.

In the sharing economy, goods and services are not provided only by entrepreneurs, but ordinary people and ordinary households. The economic model of the sharing economy makes it possible to share resources efficiently within a community that has grown massively throughout the world, and from ordinary people is doing entrepreneurs. The main principle is the fair sharing of existing resources among the members of the community in a simple and efficient way, beneficially for the both sides: the owner leases his property and the customer draws on a varied offer, available quickly, and conveniently.

The sharing economy distinguishes three elementary components, which are characterized as: platforms (marketplaces), peer markets that facilitate the exchange of capital and services between consumers. Providers (micro-entrepreneurs) are individuals or small businesses, delivering into the markets own goods or services and consumers, individuals demanding (buying, renting, consuming) goods and services (NET Institute, 2015).

The driving force behind the increase of the sharing economy is an advancement in the technological area, in particular informational services, which facilitated humanity as well as organizations the way of exchange and directly supported the expand of their networking. For the sharing process within sharing economy, ownership of ICT is essential to create an interaction between buyers and sellers. Social networks also encouraged the expansion of the sharing economy. Involvement of social media encourages and supports the sharing economy and social commerce, not only encouraging people to buy equivalent products, but also encouraging people to seek group agreements on these related products.

The purpose of this Master thesis is a comprehensive investigation of a role of informational services influencing the sharing economy practices. Informational systems are an integral part for the successful performance of the sharing economy platforms. Their impact is observed in various business actions such as an entire innovation in the business model, marketing issues, building the customer relationships, environmental and economic issues.

The structure of the Master thesis uses the methodology of the scientometric analysis consisting of the latest scientific surveys and researches conducted by international companies such as PwC, DHL, Delloite, examining the current research trends with the focus on the informational technology and its impact on the sharing economy in the technological, socio – economic and environmental area on the examples of two most-known sharing economy platforms: Uber and Airbnb.

2. Sharing economy

A significant growth of sharing economy benefited, in particular, due to the dramatic increase in the standard of living of civilization and the economic crisis in 2008, which encouraged the population to save their expenses by monetizing their skills and insufficiently used resources. Other pivotal factors, leading into the growth of the sharing economy are the digital technology revolution and the accessibility of the goods, which are demand-driven and available for sharing. The participation in the sharing economy is realized through platforms taking over the role of marketplaces (Cohen, Kietzmann, 2014).

Sharing economy platforms are a disruptive technology that increases efficiency across many industries by dramatically reducing transaction costs, emerging from new technology, and increasing the efficiency of using different economic assets. This has resulted in very significant changes in society and the functioning of traditional sectors. Sharing economy platforms are commonly online platforms that act as an online marketplace where supply meets demand, which allows a fast-growing segment sharing goods and services between each other instead of purchasing them from established corporations. Due to the low transaction costs of all participants and high data rates, these platforms are becoming very popular all over the world.

The sharing economy is the most significant change in the corporate environment since the evolution of the Internet. In 2011, according to the TIME (2011), the sharing economy was indicated as *“one of the 10 ideas that will change the world.”* Already in 2015, more than 110 million citizens of the United States, were actively participated on the sharing economy: their presence compared to the previous year increased by 25 percent (Owyang, 2015). A survey of consulting company PwC (2015) conducted on the five key sectors of the sharing economy

platforms (transportation, accommodation, household, professional and finance services) estimates, the increasing number of platform users will result in increase of the global revenues from 15 billion dollars to of around 335 billion dollars by 2025.

With the rapid expansion of the sharing economy, there is a change in the approach of life and the economic system itself which requires the development of new strategies. It is above all the possibility to offer own unused resources that can generate a certain income. Moreover, the platforms changed the way people work or use the assets what leads to the new socio-economic interactions (PwC, 2016). Among the main advantages of the sharing economy belong utilization of resources (sharing platforms are via mobile applications targeting the potential customers and meeting their demands more efficiently), new working opportunities (mostly in the developing countries has the emergence of online platforms provided new working possibilities, turning ordinary people to entrepreneurs), environmental protection, convenience (community-based platforms represent a comfortable space of sharing for both parties just with a single finger click) (EY, 2015).

2.1 The theoretical definition of sharing economy

The existence of a great diversity between activities of the sharing economy as well as the technological and definition ambiguities of the boundaries developed by the participants have caused that a firm definition of the sharing economy approach implying a common application is very vague and leads to a number of disputes. Moreover, until today, the sharing economy has taken many forms, and the authors have introduced many concepts in the similar meaning related to the concept of sharing economy. Therefore, in search of a suitable definition and for its better understanding, it is necessary to outline and distinguish a number of statements related to the concept of sharing economy.

The approach of collaborative consumption for the first time appeared in the literature in 1978, in the book by Marcus Felson and Joe L. Spaeth entitled: “Community Routine Activity Consumption: A Routine Activity Approach.” The activities of collaborative consumption are characterized as: “*Those events in which one or more persons consume economic goods or services in the process of engaging in joint activities with one or more others*” (Belk, 2013). However, Russell Belk (2013) stated this interpretation misleading and refused it. He argued that the Felson and Spaeth definition was too general even though focusing on common consumption activities, for instance, drinking beer or speaking on the telephone. According to Belk (2013), the issue of allocation and redistribution of resources was not sufficiently addressed.

Belk’s definition of collaborative consumption is “*people coordinating the acquisition and distribution of a resource for a fee or other compensation*” (Codagnone, 2016). This statement includes exchange, swap and trading activities in which any kind of monetary or non-monetary reward is present. However, this claim excludes company-sharing activities, such as CouchSourfing, which rejects any form of compensation. In his view, most of the commercial platforms that are these days considered as a part of sharing economy should not in fact been included there (Codagnone, 2016; Belk, 2013).

In the key publication in the sharing economy sphere “What’s Mine Is Yours” by Rachel Botsman and Roo Rogers, the collaborative consumption refers to “*traditional sharing, bartering, lending, trading, renting, gifting and swapping, redefined through technology and peer communities*” (Grybaitė, 2016). According to Botsman (2013), the collaborative consumption, sharing economy, collaborative economy and peer economy have common ideas but different meanings. At present, consumers are increasingly confronted with the idea of sharing economy that is by Botsman (2013) defined as “*an economic model based on sharing underutilized assets for monetary or non-monetary benefits*”.

The definition by Schor (2014) discuss sharing economy as “*digitally connected economic activities including 4 broad categories: recirculation of goods (i.e. eBay), increased utilization of durable assets (i.e. Uber), exchange of services (i.e. TaskRabbit), and sharing of productive assets and building of social connections (i.e. Mama Bake).*”

It follows from the above definitions that the importance of the sharing economy has been constantly evolving over time as a result of its long-term expansion and involvement of new facilities. Currently, experts work with a number of terms, which are used synonymously, some examples of interpretations, frequently used between consumers are “*collaborative consumption, collaborative economy, on-demand economy, peer-to-peer economy, zero-marginal cost economy, and crowd-based capitalism*” (Selloni, 2017). However, for some authors are concepts of the sharing economy and the collaborative economy interchangeable (De Grave, 2014; Botsman, 2013). De Grave (2014) notes, the sharing economy is one part of the collaborative economy, as “*distributed production, peer-to-peer finance and the open source and knowledge movements.*”

Although there is no single definition that would be widely-accepted, the sharing economy fulfills these basic characteristics (Beck, 2017):

- Platforms are operating through a website or an application
- Allowing consumer to consumer transactions
- Temporary provision of access to goods or services
- Using unused assets

The Table 1 illustrates an overview of sharing economy definitions stated by various authors (Belk, 2007; Botsman 2015; Schor 2014; Barnes 2016; Hamari 2015; PwC 2015; Oxford dictionaries; Investopedia).

Table 1 Definitions of the sharing economy

Author (Source)	Definition
Belk, R. (2007)	“Sharing is an alternative to the private ownership that is emphasized in both marketplace exchange and gift giving”
Botsman, R. (2015)	“An economic system based on sharing underused assets or services, for free or for a fee, directly from individuals”
Schor, J. (2014)	“Sharing economy activities fall into four broad categories: recirculation of goods, increased utilization of durable assets, exchange of services, and sharing of productive assets”
Barnes, S. J. (2016)	“The use of online market places and social networking technologies to facilitate peer-to-peer sharing of resources (such as space, money, goods, skills and services) between individuals, who may be both suppliers and consumers”
Hamari, J. (2015)	“An umbrella concept that encompasses several ICT developments and technologies, among others collaborative consumption, which endorses sharing the consumption of goods and services through online platforms”
PwC. (2015)	“The sharing economy is an economic movement where common technology enable people to get the goods and services they need from each other, peer to peer, instead of buying from established corporations”
Cambridge Dictionary, (online)	“An economic system that is based on people sharing possessions and services, either for free or for payment, usually using the Internet to organize this is”
www.investopedia.com	“A peer-to-peer based activity of acquiring, providing or sharing access to goods and services that are facilitated by a community based on-line platform”

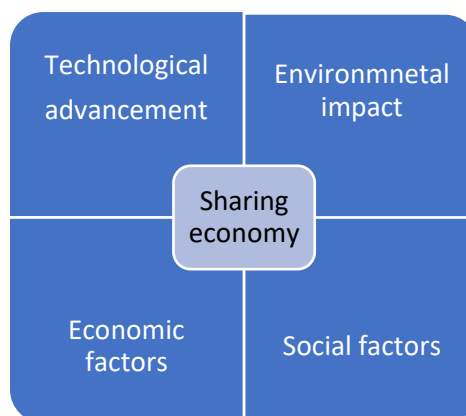
Source: Author, 2018

2.2 Sharing economy as a new phenomenon

As it is difficult to clearly define the terminology of the sharing economy or to appoint its founder, it is equally difficult to determine the period of its emergence. The notion of sharing is known for decades, since the first forms of trade involved the exchanges of goods or services among individuals without using money. An emergence of the sharing economy was supported in particular by four driving factors, seen in the Figure 1. One of them can be considered as a recent economic decline that has led people for searching of cheaper goods and services. Equally important are the environmental issues or the need of binding new contacts. Last but not least, it is a technological advance that has made it possible for people to simply connect people around the world (Selloni, 2017). This chapter deals with the most important factors that have prompted the development of the sharing economy. Understanding these concepts as potential driving forces for participation on the sharing economy is necessary due to exploring the consumers' needs that motivate them to the participation on the sharing economy.

The Latitude (2010), an international research consultancy, exploring latest ICT in cooperation with Shareable, online magazine, exploring better ways of sharing, distinguished four drivers contributing to the emergence of the sharing economy: *technological, economic, ecological and social*.

Figure 1 Driving forces of the sharing economy



Source: Author, 2018

Technological advancement. An origin of the sharing economy is closely related to the Internet development, a growth of information technologies especially unpaid peer-to-peer platforms (Belk, 2013). The emergence and fast adoption of modern technologies such as social, mobile, analytics and cloud computing are accelerator of progress of the sharing economy, which not only transform the way of human's interaction, but also the way of consumer's consumption (Hosu, 2016). The structure of the market has changed considerably in relation to the customers, whose interests and demands have greatly developed over time. As a result, customers have begun to accept a new form of business brokerage through the rise of social networks such as Facebook, LinkedIn, or YouTube. Sharing on social networks has become a common practice of everyday life. A breakthrough occurred in 2006, when Web 1.0 was upgraded to Web 2.0 (Cormode, 2008).

Web 2.0 refers to “*the ability for people to collaborate and share information online via social media, blogging and Web-based communities.*” (Technopedia, n. d.). Unlike the previous generation of the Internet, which served as a platform for providing information only, through the Web 2.0, sellers have the opportunity to offer their unusable consumer goods and buyers to consume the goods of other participants. As a result of this process, the seller has the ability to transform passive capital into a valuable asset (John, 2012). The Internet as well as Web 2.0 thus became the new sharing channels, enabling the emergence and development of the new forms of communication and the way in which information is generated and consumed by online-users. The availability of information technology tools has also developed new forms of sharing, or it facilitated to expand the existing ones, resulting in virtually every participant being able to participate in web-content creating.

Due to the revolution in the digital sphere, the concept of sharing moved forward and created opportunities for individuals to monetize their skills and use unused resources appropriately (Schor, 2014). Moreover, the growing number of people connected to the Internet, since interconnected people are one of the most important elements of every business, contributed fast exchange of information and data in the world. According to social media management platforms Hootsuite and We are social (2018), the number of people using Internet in 2018 reached over half of the world's population, from what the number of mobile phone users represents almost 5.2 billion which indicates a year-on-year increase of 4 percent and about 3 billion use social media each month.

Economic factors. An economic recession triggered in 2008 had caused the most significant decrease in household's economic activity and the rise of unemployment. Declining incomes and increasing cost for goods were putting pressure on innovation and structural changes. For many owners of properties, the availability of existing long-term goods has given rise to the possibility of a short-term rent, from which an income allowed mitigation the impacts of the crisis and developing new sources of income (Toposophy, 2014). Consumers have started to perceive the offer more innovative, specialized, extensive, and especially affordable. The result is the expansion of the market by a new level as well as a higher competition, both on the demand side as well as on the supply side. Many companies that are these days participating in the sharing economy have benefited from the Global economic crisis, which resulted in a higher price sensitivity of consumers. As a consequence of financial difficulties, consumers habits have changed and tended to turn away from ownership towards consumption-based access (Belk, 2013).

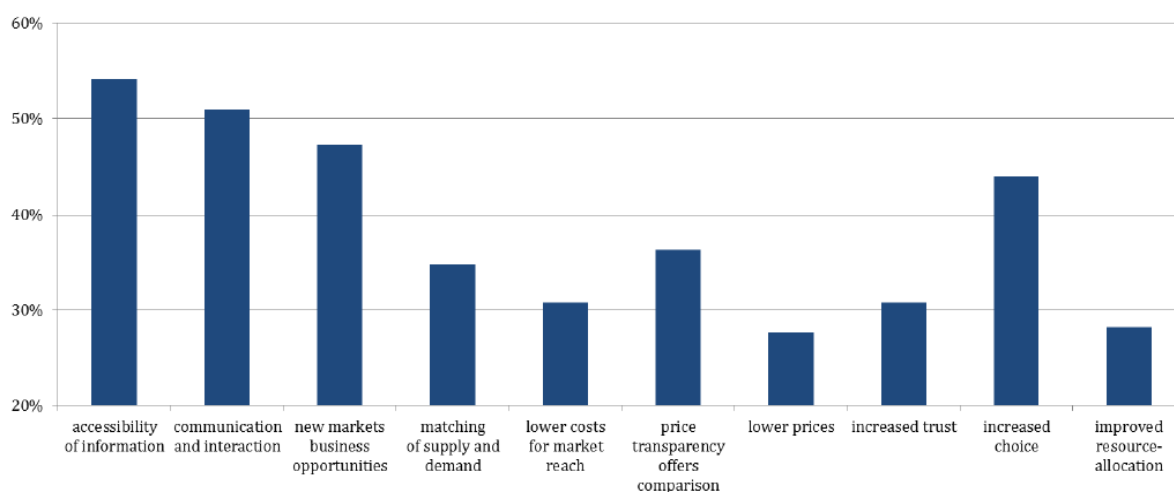
Environmental concerns. Nowadays, humanity is more conscious of the impacts of environmental crisis resulting in significant changes in consumer's values. According to a study of the consulting enterprise PwC (2015), 76 percent participants of the survey suppose their presence in the sharing economy, the way to protect environment. Customers' requirements and needs are varied and unstable, as a result, products are becoming unused unnecessarily faster. The life cycle of the product is therefore declining, and the amount of waste is growing.

The beneficial effect of the sharing economy on environment are occurring due to usage of the existing resources and greater availability of products, which in turn extends the product life. These beneficial effects have been made to the environment confirmed in its survey in Montreal the Airbnb company (2015). The survey found that over a period of one year, thanks to the services of this accommodation company, it was able to reduce the amount of energy corresponding to the consumption of 620 homes and the water saving was comparable to the nine swimming pools of the Olympic dimension. However, these results are considered by the experts to be overvalued because the research methodology is not known (Frenken, 2017).

Social factors. Web 2.0 and social media, based on communication and dependency on interpersonal interactions, are considered to be ideal platforms for building human relationships which could not fully operate without mutual trust. By building the trust between the two parties are platforms mostly using evaluation systems through which consumers and providers can, after each transaction, give feedback about their purchase (Poulpiquet, 2016). Additionally, the advancement of the sharing economy is mostly based on the creating of new social circles within society, especially in the creation of principles among individual participants. If a user is not satisfied with the services provided, his negative or low rating can significantly affect decision-making about the participation of other consumers (Grybaitė, 2016).

Social networking has to the large extend contributed the development of social connections between consumers, which have become a key communication tool for traders, allowing more effective and faster communication and trust-building among participants of the sharing economy (Toposophy, 2014). A significant positive relation between community membership and the probability of reusing the sharing option was found in the survey of Car2go and Airbnb users. The desire of belongingness into the community represents a significant impact when deciding to participate in the sharing activities (Möhlmann, 2015).

Figure 2 Benefits of the sharing economy



Source: European Commission, 2016

This chapter provided a comprehensive overview of the emergence of the sharing economy as well as factors that encouraged its expansion. A rapid development, an adaptation of the sharing economy and an extend of usage of the sharing platforms have proven that the users perceive series of benefits of participating on it. The benefits of the sharing economy platforms are summarized in the Figure 2. Participation in the sharing economy allows better allocation and usage of resources, thereby improving the productivity and efficiency of the economy. Sharing economy can also reduce entry barriers for retailers who can maximize the use of their existing assets and gain additional revenue. An increasing rate of competition on

the market is directly influencing the future development of consumers' product prices. Hence, competitive price has the effect of lowering prices, as well as expanding market offers or opportunities of greater choice. Moreover, through the arise of social networks, the information transfer became more accessible, making communication much easier and bringing opportunities for creation of new business (Oxera, 2015).

2.3 Business models

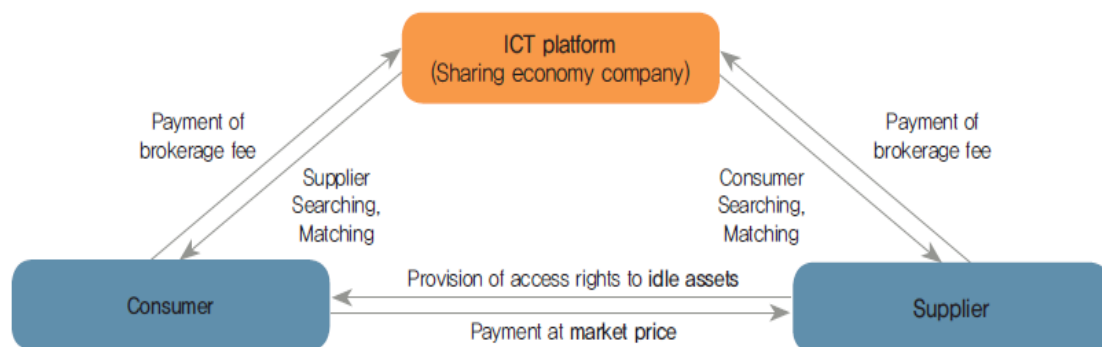
For decades, businesses have been running on the principle of linear logic, which means that manufacturers distributed products that were subsequently purchased from customers who owned and used these goods as long as they fulfilled their functioning activities. Approximately around 2008, with the onset of the economic crisis, this paradigm began to change in the sense of the preference of temporary ownership over actual personal ownership. Compared to traditional business models, the sharing economy platforms operate on the basis of network-based business models. The primary importance of the platform is thus to stimulate customer values and experience (DHL, 2017).

The sharing economy supported by technological advancement applies the growth of new business models in the form of platforms that exclude traditional markets, decompose sectoral categories, and maximize the use of scarce resources (Schor, 2014). Business models are an essential framework chosen for a better understanding the way companies operate. Before analyzing the business model of the sharing economy, the following definition is given of what is meant by a business model *“an architecture for the product, service and information flows, including a description of the various business actors and their roles; a description of the potential benefits for the various business actors; and a description of the sources of revenues”* (Timmers, 1998).

In other words, business models describe how the company is earning financial resources. It is the basic principle of the business and the financial functioning of each company. It defines the way company generates and derives value from providing its services or selling products. The structure of business models is based on the three main choices constituting who the actors within the model are, what products and services are being offered and how the competitive advantage is being built in terms of value chain.

Innovation in the sharing of assets and services allows technological evolution that enables digitally authorized trade, where many actions are available solely with the usage of the mobile devices, through online platforms (marketplaces) between individuals acting as providers (entrepreneurs) and buyers (consumers) of goods and services covering many sectors, including transport, delivery and logistics, travel and hospitality, home services, dining, food and beverages facilitated through online marketplace (NET Institute, 2015).

Figure 3 Business model of the sharing economy



Source: KDI, 2017

Sharing economy models, displayed in Figure 3, involve three categories of relevant constituents:

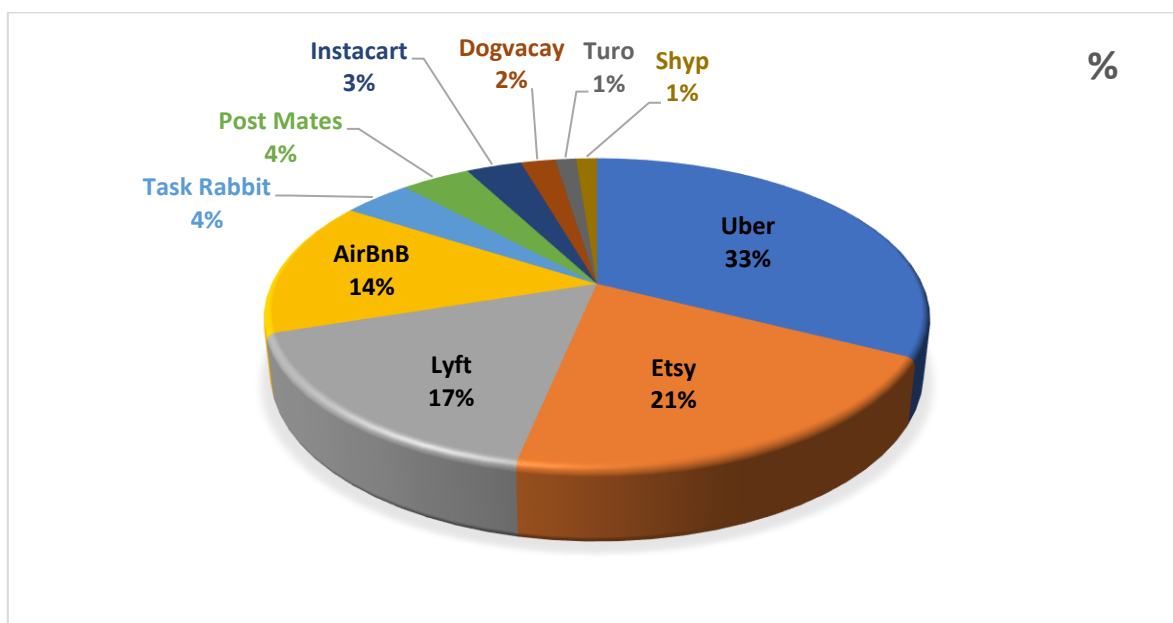
- Providers – indicate the individuals (small businesses, micro-entrepreneurs) delivering goods or services in peer to peer transactions that generate supply of goods and services on the platform.
- Consumers – defined as recipients who buy, acquire or rent goods and services from peer providers. They are dealing with peer to peer transactions on online platforms due to access to less expensive goods and services. A report of research center Pew (2016), examining the crowdfunding, home sharing and ride sharing services, characterizes segment of the sharing economy as consumers that are better educated, mostly university graduates, having higher incomes and living in the urban areas.

Regarding the age, most of the users 18 - 44 years old own four and more applications while those from 50 years none. An inseparable segment of the sharing economy that is actively engaged in the sharing activities as providers of services, known as Millennials generation, individuals born in the 80s and 90s, whose attitude towards technology and social media compared to other generations is considered to be more positive. The researches show Millennials, for instance, are more likely to participate on the shared transportation over own ownership what identifies them as “drivers” of the growth of the sharing economy (Ranzini, 2017).

- Intermediaries – marketplaces that provide platforms to facilitate, organize, and mediate connection between providers and users to simplify their mutual transactions. Sharing economy platforms are known as *“online platforms that coordinate a group of individuals (or peers) to enable the sharing of an asset or resource, including physical assets or skills. They are platforms where people can share, rent, exchange or donate goods and services”* (Oxera, 2015).

As represented in the Figure 4, an awareness of the sharing economy platforms varies, depending on the type of the service offered. According to Statista (2016), the population of United States participates mostly on the ride sharing services (Uber and Lyft), craft services (Etsy), room sharing (Airbnb) and delivery services (TaskRabbit and Postmates).

Figure 4 Awareness of the sharing economy platforms



Source: Statista, 2016

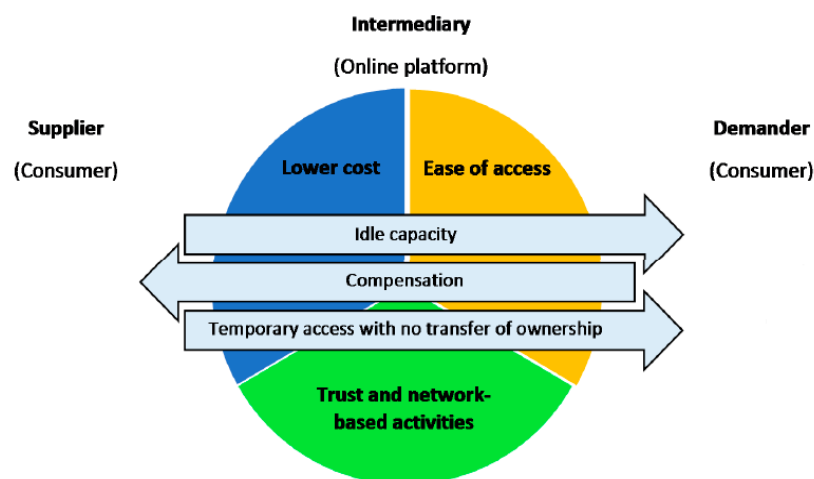
The novelty of sharing the economic models depicted in Figure 5 lies largely in commercial transactions resulting from the purchase or sale of consumer goods and services through online platforms that play the role of an intermediary channel between the two parties and thus allow for transactions in different ways (Hagiu, 2013).

Another innovative feature represents idle capital, the owners can capitalize on their unused assets either financially or in exchange for a different resource and trust building that enables transaction partners to limit counterparty verification and control of responsibility (World Economic Forum, 2017). Moreover, the innovative platforms have caused a profound social impact, altering the structure of traditional business models in terms of employee-

employer relationships, for instance, by outsourcing a larger number of workforce (Aloisi, 2016). Additionally, digital platforms significantly reduce localization constraints, making them cost-effective and convenient alternative to traditional business services by reducing transaction costs between sellers and buyers (Hamari, 2015).

In the digital environment with the development of ICT, changes are taking place in traditional business models and the platforms' principles are increasingly being applied. The sharing economy is an emerging economic and technological phenomenon that is supported by growing consumer awareness, the spread of sharing web communities as well as social trade (Hamari, 2015).

Figure 5 Sharing economy framework



Source: Ranjbari; Morales-Alonso; Carrasco-Gallego, 2018

From an economic point of view, a sharing economy can be understood as a two-sided platform. This means a platform whose business model is based on mediating interaction between two parties – the most common between supply and demand, meaning between counterparts who have something to offer and those who are interested in it, without the transfer of ownership (Rochet, 2013). Enhancing technologies, especially the Internet, cloud-computing, smart phones, business intelligence and accurate geolocation has allowed the

sharing of economic platforms to become scalable enough to create a critical mass of users. Platforms are developing new services or apps that are associated with changes in business models, both value and supply chains. Moreover, the multifaceted nature of the platform gives scope for various decentralized innovations.

Many authors have focused on exploring business models of the Internet-based platforms. The following sub-chapters describe two most known sharing economy platforms, Uber and Airbnb, with the focus on the technological functioning of their business models. By analyzing business models of these companies, it is possible to obtain a deeper understanding of the way the platforms create a demand-supply relationship with customers, derive revenues and the importance of the information systems that affect the functionality of the platforms in providing services. Moreover, the sub-chapters describe the impact of these platforms on the functioning of traditional service providers.

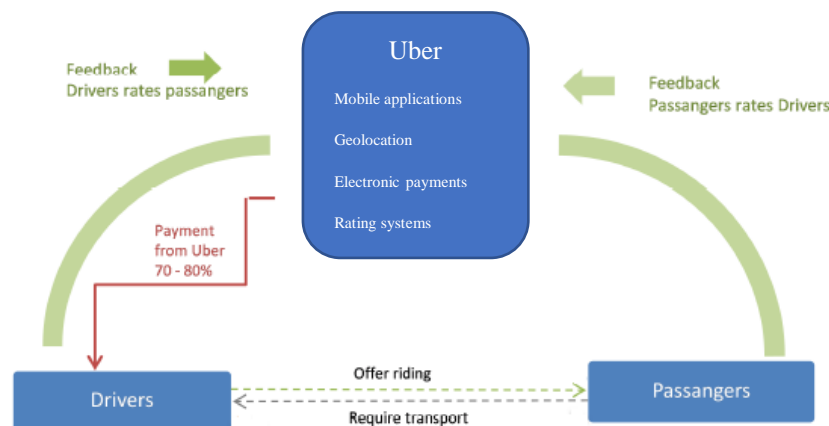
2.3.1 Ride sharing

Ridesharing services have recorded a significant increase over the last period, with more than 600 global providers estimated (Cohen, 2014). An example of one of the most popular ride sharing providers is Uber which has seen a significant increase since its inception in 2009 becoming a paradigm of business models for other platforms. Uber as a ridesharing application meets the following characteristics: a location-based driving software system, a third-party mobile commerce platform integrating information online, an economic model that combine sharing information online and offline vehicle sharing (Hasan, 2016).

To this day, an estimated enterprise value is around 50 billion dollars (Harvard Business Review, 2015). The purpose of the company is to mediate transportation therefore the meaning of the word Uber is often perceived in synonymous terms with providers of the taxi services. Interconnection of customers, who take advantage of the Uber services with the drivers, who

play the role of service providers is carried out through mobile applications, where for a complex functionality the passenger and drivers' applications are required. A simple business model of Uber is shown in the Figure 6.

Figure 6 Uber platform



Source: Henten, 2015

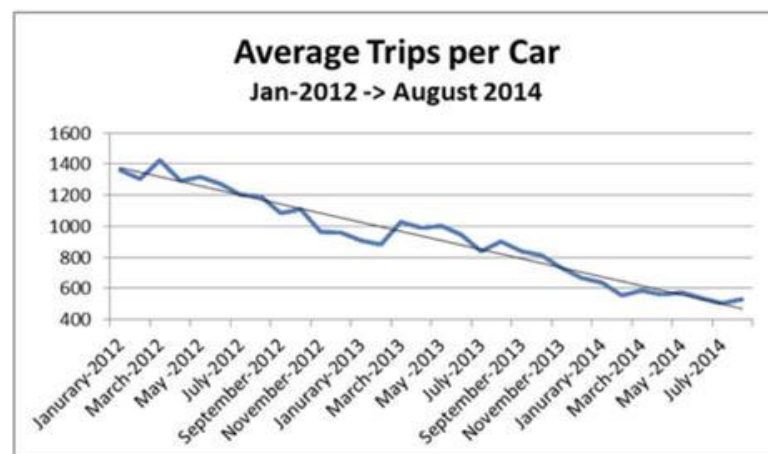
Uber applies a different passenger search method compared to traditional taxi providers. Instead of graphic designation such as taxi stops and street stops, Uber platform drivers rely solely on the mobile applications providing connection between drivers and passengers via the Internet and GPS (Global positioning system) technology to monitor a current position of users and the nearest located drivers. The geolocation tracking process depends on:

- a) an identifying of mobile device's position – Uber applications distinguish between iOS and Android systems
- b) providing the right direction – for pointing directions, mapping software and API (Application Program Interface) are used
- c) integration with mapping software – implementation of Google maps for solving the logistic issues (iQlance, 2018)

After a ride-ordering either SMS or push notifications are sent on client, concerning all the questions related to the ride. The difference in the service provision occurs also in the way of negotiating the payments of the transactions. Traditional taxi drivers have a price list displayed in their cars, and the cost of a ride calculates the taxameter. The Uber applications calculate an estimated total cost per route before ride and then sends an electronic receipt via e-mail on customer. The payments for services are integrating cashless system through credit or debit cards, e-wallet, PayPal's or coupon code. The customers are informed about an estimated time of arrival (ETA) at intended destination before their ride (Mohd Zin, 2017).

Uber practices are directly affecting providers of the taxi services as both entities operate the same market subjects, targeting on the same segments. However, Salmon (2013) points out that this competitiveness can have a positive effect on the increasing income of traditional taxi drivers. Historically, the taxi drivers had no bargaining power related on their own income, but emerging competition represents higher wages, not lower earnings.

Figure 7 Downturn in the taxi industry



Source: Shareable, 2014

Disruption in the use of traditional taxi services is visible throughout the world. The Municipal Transit Agency San Francisco survey recorded a significant decline in the usage of taxi services by 65 percent in the period of two years displayed in the Figure 7. While it is assumed that the current impact of Uber will continue to persist and not only in decreasing numbers of rides in the taxi industry, but also in terms of wages and working places (Shareable, 2014).

The analysis of Oxford Martin School reveals an extension of Uber services resulted in the increasing number of self-employed drivers of by 50 per cent (Gaskell, 2017). Cramer and Krueger (2016) survey by the number of weighted hours worked, reported at around half as many drivers of the ride sharing than taxi drivers are operating in United States. Additionally, the localization technology enabling finding the closest passenger, estimates 9.3 percent reduction in the searching time, allowing an increase rate of capacity utilization.

Recently, Laurell and Sandström (2016) studied on the example of Uber whether the sharing economy platforms are primarily conceived as technological disruption or institutional disruption. The analysis was done by exploring more than 6500 posts in various social media such as Facebook, Twitter, YouTube, blogs and forums, hence through social media analytics (SMA), the methodological approach of social media data analysis. Thus, the keywords set of the content published on the social media was used for the data collection.

The analysis found that a large number of Uber users are sharing their experiences on social networks. In terms of technological disruption, 21.6 percent of users considerate the performing measures as those related to the value of Uber as service itself (comfort, safety, precision, reliability, price) and those introduced as a consequence of Uber related to competitors (mobile applications or integration of other applications and services). Twice as many users, 44.7 percent, consider Uber as an institutional disruption. An example of user's view: "I hope that the Uber-question will not be owned by a certain political group and become

a political weapon for innovation issues” Moreover, an important theme regarding Uber's activity is the question whether it is perceived as part of the taxi industry or as a separate business. An example of the user’s discussion is either supporting or rejecting this notion: “The new replaces the old. Creative destruction. Uber is among the best that has happened to the transport sector”, “Uber is now the service that has changed the way we view Taxi.” The results indicate that Uber is among users more perceived as an institutional disruption. In addition, the research has pointed out that the user-generated content of social platforms is to a certain extent transforming market by supporting or rejecting the efforts of entrants.

2.3.2 Room sharing

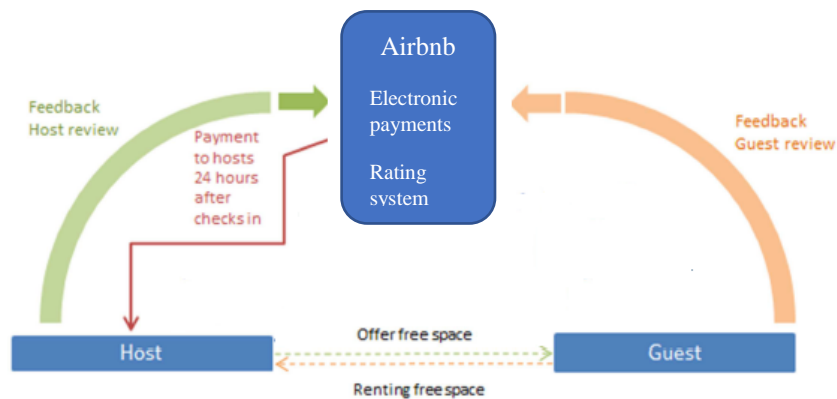
Since 2008, Airbnb provides as a two-sided online lodging platform possibility for hosts to monetize their unused/free space and for guest’s possibility of choice from a great offer of short-term renting with lower costs. A simple business model of Airbnb platform is shown in the Figure 8. In 2017, an estimated enterprise value presented around 31 billion dollars (Statista, 2017). Since its inception, the company has recorded an increase of over 2 million units covering at around 65 000 cities in 191 countries with over 50 million users (Zervas, 2016).

Innovation of the Airbnb business model protects the identity of its users by ensuring authentic personal information, providing photographs and links to their social accounts. Airbnb, just like Uber, is only a marketplace for connecting providers and users of accommodation assets, but in reality, none of these platforms are owning any items itself (Cohen, 2017). Once the platform users confirm their order, hosts are receiving confirmation in the form of message.

Customer payments are made through PayPal, direct deposit, or international money wire. Revenue for the platform provider is derived from both actors: guests and hosts, guests pay between 9 - 12 percent depending on the duration of their visit and the hosts 3 percent for

costs covering processing fees. In order to increase reservations with which increased sales are also associated, a free photographic service for attracting new guests is offered as photographs provide a visual information for potential guests (Henten, 2015). As in the case of Uber, Airbnb places also a significant emphasis on the rating system, otherwise called the "five-star review". A mutual peer review is given by hosts and customers about their overall satisfaction. In the sharing economy are rating systems considered to be a key tool for building trust between parties, encouraging them for a future participation (Forbes, 2016).

Figure 8 Airbnb platform



Source: Henten, 2015

In the research from University of Zadar (2014), based on the online questionnaire posted on the official Airbnb Facebook account, the content and presentation of information and communication as well as simplicity and accessibility of data on the example of Airbnb platform was explored. The required data of survey were processed through the TRI (Technology readiness index), which was calculated for each respondent to determinate the willingness of users to access and use new technologies. It is clear from the TRI results that the interest in the home sharing services is growing dramatically, given that most platform participants are young people who have good knowledge of ICT. The platforms are represented by simple handling, the integrity of payments, the functionality of the service itself, and the use of ICT in bookings. Users who are familiar with ICT did not provide a high level of

dissatisfaction due to lack of communication with the provider that could occur, for instance, in the form of host's cancellation as a major drawback, with ICT the users can easily and quickly find an alternative solution (Grzunov, 2014).

The Airbnb business model is considered complementary to the model of the hotel industry but is geared towards generating economic benefits for local cities provided by Airbnb customers (Airbnb, 2018). Thanks to the rapid build-up of a strong network with the growth of both users and service providers, Airbnb has significantly affected the hotel industry. Table 2 represents numbers of available rooms offered by Airbnb comparing to the largest hotel chains conducted according to the report of Hotel News Now, investigating an impact of the new platforms of the sharing economy on the hotel industry based on the analysis of the 10 largest important hotel companies.

In 2014, Airbnb began strongly competing with the large hotel chains as it was able to offer a comparable standard of accommodation at lower prices targeting business segment that by 2015 represented 10 percent of Airbnb customers. This occasion has prompted cooperation between smaller and luxury providers of the hotel services that today post their offers on the Airbnb's platform. (NY Times, 2015).

Table 2 The largest accommodation providers

Company	Existing hotels	Existing rooms
Airbnb		1 000 000
InterContinental Hotel Groups	4 840	710 295
Hilton	4 278	708 268
Marriott	4 044	692 801
Wyndham Hotel Group	7 645	660 826

Source: Hotel News Now, 2014

Airbnb and Uber are the most frequently explored platforms for the disruption of traditional industries. Both companies successfully demonstrated that the use of unused resources can be organized globally on the basis that their revenues had reached an estimated 1 billion dollars less than a decade without the company owning one single room or vehicle (DHL, 2017).

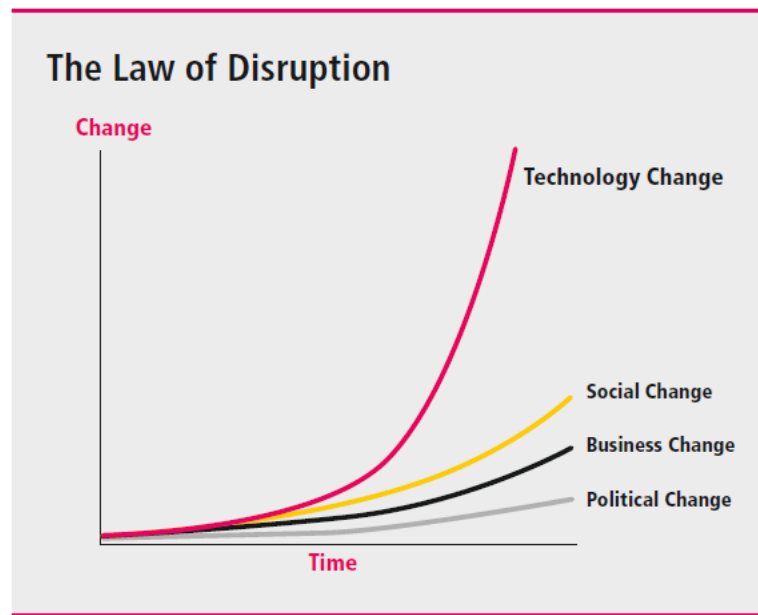
The following chapters progressively describe the role of the information technology in the sharing economy with a respect to the driving factors, namely technological, socio – economic, and environmental, which contributed to the sustainability and the change of the traditional business models.

3. Technology confluence

A simplified approach to computing, the rise of globalization, growing demand for mobile devices, and the expansion of communications networks, encouraged the development of the sharing economy. Apart from the foregoing forms of communication, the Internet has become the primary communication tool used as a channel in the online business environment for information transmitting (Grzunov, 2014).

Larry Downes (2009) observed, a technological advancement has a significant impact on the development of the sharing economy, while other indicators such as social, economic or political have much slighter impacts. It is clear from the Figure 9 that the development of technology is growing exponentially, meaning the mankind reacts to the technological changes much greater, while the growth of other indicators is rather incremental, the axis are almost in the linear shape, having more negligible impact on the development of the sharing economy (DHL, 2017).

Figure 9 Laws of disruption



Source: DHL, 2017

The process-sharing phenomenon in the world is expanding mainly due to the development of ICT social technologies, which have simplified the scope of day-to-day and working activities. Currently, many companies are taking advantage of the benefits of the digital technology whose implementation into existing business models results into improved prosperity, for example as discussed in the case of the hotel chains and the Airbnb platform.

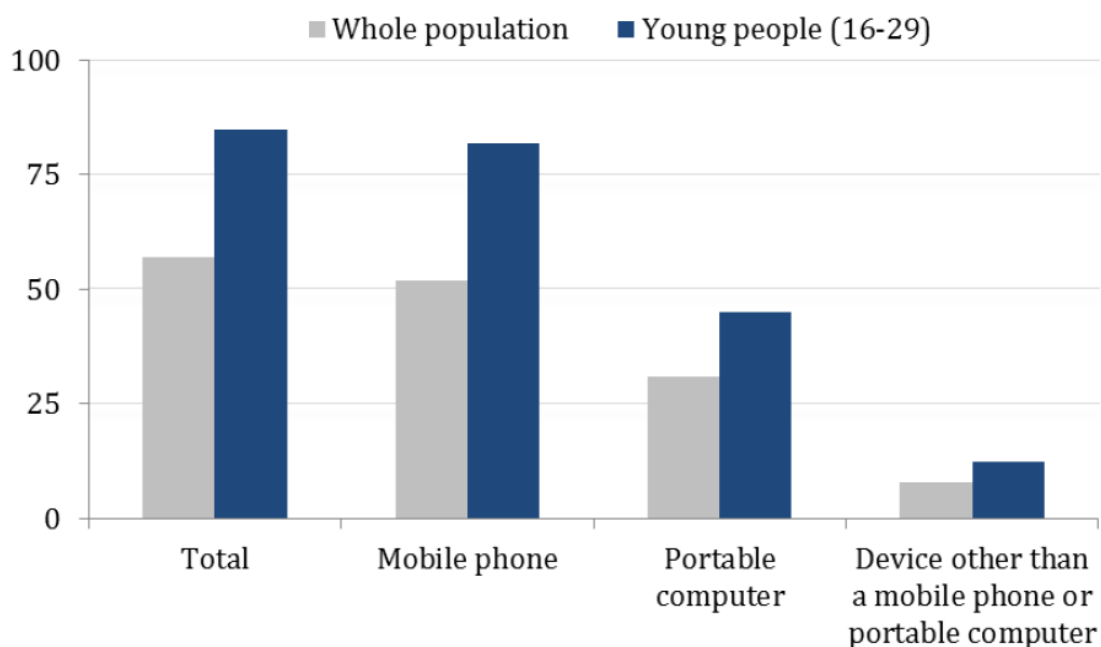
The most important factors behind the rise and sustainability of the sharing economy are considered to be the economic, social, environmental and technological indicators that are undermined by a change in consumer requirements and values as well as by market innovations (Daunoriene, 2015).

3.1 Technological capabilities

As ICT plays a significant role in the participation in the sharing economy and electronic commerce, the growing number of online users increases the likelihood of these individuals becoming involved in sharing activities. According to the Eurostat (2015) survey, the majority of European population of the Internet users prefer mobile phones more often than tablets or other electronic devices. This observation is particularly visible in younger generations, represented in the Figure 10.

A growing broadband mobile connectivity is reflected, for example, in increased revenues of advertisement on the mobile segments. Advertising revenues in the European Union increased in 2014 by 55 percent and represent an indispensable source of income for a large number of sharing economics platforms (European Commission, 2016).

Figure 10 Use of ICT



Source: Eurostat, 2015

Implementation of the ICT in the sharing economy services simplified the interconnection of strangers, promoted the collaboration of users (Sundararajan, 2014), increased an encouragement to cooperate, gather information about the past and present actions and predicts the future behaviour of participants (Zapatero, 2013). In the research paper of Mohd, et al. (2017), focusing on the ICT facilitation the sharing economy business models, the authors provided comparison of the Uber and Airbnb value propositions, the results of analysis are represented in the Table 3.

Table 3 ICT simplification in the sharing economy

ICT simplification	Airbnb	Uber
Peer interconnection	✓	✓
Peer collaboration	✓	✓
Rising encouragement to cooperate	✓	✓
Information gathering	✓	✓

Source: Mohd, et al., 2017

Confidence between users and Uber drivers and Airbnb hosts encouraged the association of unfamiliar participants on these platforms. Use of the communication technology has significantly facilitated a connection of the enormous number of people from different parts of the world and an application of the principles of the sharing economy that were previously limited to their immediate surroundings, a level of anonymity in the online environment has also decreased.

Through the sharing applications, operators gain access to a vast number of data about users of the sharing economy platforms. As a result, companies with the available information can more easily reach their customers with a specific offer of services, regardless of geographic location. Platforms enabled customers on the demand side and service providers on the supply side to interact in the form of sharing their own unused resources and services among themselves. Besides, platforms attract new users to become a part of them especially through

word-of-mouth and mediation programs. The platforms are capable to evaluate proliferation of Big Data, data analytics, cloud services and other algorithms by collecting the latest data of the current and past demand in order to predict future occasions into competitive advantage of future market interactions (Mohd, et al., 2017).

In the qualitative research paper of Ohene-Bonsu Simmons (2018), the author focused his study on the understanding the impact of ICT on the example of Uber platform and the way how this technology disrupts traditional businesses. The survey found out three main issues causing disruption in the traditional industry:

Priority of drivers and passengers for Uber services. Uber recognized a gap in the taxi industry and provided technological solution to match the interaction of both subjects, providing possibility to pick up the travelers in the minimum time-range and to bring them to any destination, thanks to a simple order from own mobile devices.

Mobile devices availability. IS professionals concluded that the sharing economy platforms are fully committed to the technological advancement. The process of the order itself begins by installing the application and registering both participants. The difference lies mainly in the use of mapping technology compared to traditional taxi industry, where in the process of localization 'manual' search is used. From the driver's point of view, Uber applications with GPS markedly reduced searching time of actors.

The network subscription affordability. A central element of linking the platforms of the sharing economy and all the elements is the network, distinguishing Internet and mobile networks. In 2017, according to the statistical portal Statista (2017) has 3.58 billion of the world's population access to Internet connections. At present, the number of smartphones

worldwide is approaching the number of 3 billion. With the growing number of smartphones, the number of mobile apps used by individuals also increases.

According to a study by Statista and Mashable, media and entertainment company, the average number of mobile apps installed by the individual on a single phone is around 26 (Statista, 2013). As mobile connectivity represents a major worldwide share in electronic commerce, there is a greater likelihood that an engage in the sharing economy will increase as the platforms of the sharing economy are based on the mobile connection principle (DHL, 2017).

Simmons (2018) also distinguishes main entities causing disruption in traditional industry: *hardware* for having access to applications necessary for both parties. *Software* is an inseparable part of hardware that enables its functionality. Sharing platforms synchronize applications of both actors with geolocation features such as GPS and mapping systems. The role of the software is to connect mobile devices and applications together. The role of *Internet* is giving a possibility to download and install applications for interaction on the sharing services, enabling to order a service.

Applications that are installed on a mobile device provide complementary dependency while the dependency of Internet is temporal. To summarize the findings, mostly the population that is well-known and familiar with ICT has shifted from the use of traditional industry to the sharing economy. In addition, none traditional industry is immune toward digital advancement, causing its suitable disruption (Simmons, 2018).

Table 4 Technology innovation and implementation for the sharing economy

Innovation	Implementation for the sharing economy
<i>World Wide Web</i>	a platform for presentation and exchange of content, functionality and media
<i>Web-based consumer commerce</i>	peer to peer commerce and introduction of reputation, trust, recommendation
<i>E-mail</i>	low cost means for communication online
<i>3G phone network</i>	access to the Internet when moving
<i>Social media</i>	communication means between informal groups of participants, online profile creation, tool for building a trust and awareness
<i>Cloud storage</i>	low-cost data storage, providing a high level of complex functionality
<i>Mobile broadband connection</i>	access to Internet for wireless communication
<i>Mobile devices</i>	access to all listed technological innovations

Source: Harvey et al., 2018

Harvey, Smith and Golightly (2018) examined online capabilities causing an innovation with its implication on the sharing economy platforms summarized in Table 4. The nineties of the 20th century is related to the development of opportunities that facilitated sharing respectively created new forms of sharing. This period is associated with technological expansion that has encouraged Internet experience, largely due to the introduction of a World Wide Web or a cheaper access to unlimited resources with the advancement of cloud storage or mobile broadband connection.

Further developments include applications that have disrupted traditional models such as eBay or the development of human-computer interaction conventions as social networks. The combination of low and high performance has allowed these technologies to create new forms of sharing. The culmination is the upsurge of smart phones, which has enabled access to these functions from anywhere supplemented by localization options.

3.2 Digital competency

Digital competency, hence a lack of ICT skills, poses a considerable disadvantage for the sharing economy. The participation in the area of the sharing platforms considerably depends on ICT skills, thus provides opportunities not only for new service providers but also for users who need at least the basic ICT skills for participation in the sharing economy that is available through digital technologies (Andreotti et al., 2017).

Computer self-efficacy presents “*an impact on whether the users adopted technology*” (Wang, 2003). Many surveys agree, the individuals with higher education (PwC, 2015; Campbell, 2012; Smith 2016), higher income (PwC, 2015; Campbell, 2012; Smith 2016), lower age range (PwC, 2015) and higher skills in the ICT are typical sharing economy segment unlike those with lower education, income, higher age range and lower technological skills (Dillahun, 2015). Dillahun (2016) in her research found out the individuals, who have less technological knowledge or skills rather do not participate on the sharing services. A study sample claimed they were more comfortable by using platform applications when someone in their social community supported them in case of operating difficulties.

A quantitative research of University of Michigan investigates how computer self-efficacy and easiness of computer usage impact the individual's presence in the sharing economy. The researchers hypothesized:

- a) The probability of using the sharing economy applications is less likely by people with a lower computer affinity.
- b) Individuals with the higher computer affinity are more likely to participate the sharing economy.
- c) Individuals who perceive technological use more difficult are less likely to participate the sharing economy.

- d) A willingness to participate on the sharing economy services is higher by participants whose perceived easiness of technological use is greater.

The research finding supported all hypothesizes, meaning the technological self-efficacy and perceived easiness of use of sharing economy services positively correlate to future willingness to pay for these services and experience (Hsiao, 2018).

3.3 Digital marketing channels

The following section continues with theories discussing the impact of platforms and their digital marketing activities that promotes the way how platforms of the sharing economy communicate with the customers. Due to the emergence of the Internet era, especially growing numbers of Internet subscribers and in particular the Web 2.0, digital marketing has become an important tool for online communication (Visser, 2015). As a result, consumers are getting information from unfamiliar people not only through the Internet but also various interactive channels for sharing information such as social networks, blogs, forums and online communities.

The practices of digital marketing are discussed because of its frequent use by companies operating in the sharing economy, through which they communicate and particularly build a relationship with both current as well as future users. Digital marketing today is one of the most promising communication strategies, due to the minimal cost and significant bonding of relationships. A number of companies in the sharing economy today are promoting their services through social media, which creates additional opportunities to research their effect on the consideration of consumer sharing (Barreto, 2014).

Marketing communication in today's world is no longer limited to traditional one-way interaction. The implication of ICT stimulated the flowing through different currents, especially through the relationships that individuals have with each other. The exploitation of Web 2.0 has

led to a significant change of traditional word-of-mouth (WOM), especially through social media and blogging (Leskovec, 2008). Digital Marketing is characterized as “*the practice of promoting products and services using digital distribution channels via computers, mobile phones, smart phones, or other digital devices*” (Smith, 2012).

Digital marketing is thus a way of communication when the marketing message appears to the recipient so interesting that it will cause self-dissemination by his own technological means. The viral message exponentially spreads through the media without the initiator's control. Consumers have an active role in distributing marketing messages to friends, and recipients have more confidence in messages from well-known sources. According to Keller (2007), WOM is perceived as one of the most effective and influential channel of communication.

The company that significantly takes an advantage of the viral marketing campaigns is Uber. Its former Chief Executive Officer, Travis Kalanick (2011), claims that Uber spends “virtually zero dollars on marketing, which spreads almost exclusively through WOM”. Kalanick further refers that their virality is enormous, as 95 percent of customers have learned about their services from other travelers. Among Uber’s successful viral campaigns that managed to reach a large number of customers through social media belongs for instance a campaign when drivers were delivering an ice cream to travelers’ homes by recording their deliveries and posting them to the social media (Uber, 2012). Such a marketing campaign can be qualified as digital marketing when the message exponentially spread through the social media like Facebook or Instagram thanks to the voluntary activity of people. Although the original campaign was initiated by the company, the users were involved in active dissemination.

Similar approaches have been applied by Airbnb company, which has also launched several marketing campaigns with the features of digital marketing. For example, Airbnb offered a night in a plane converted to an apartment in cooperation with airline company KLM, 2014) or a winning contest in cooperation with the baseball team Chicago bulls at which the contestant was rewarded with the night spent at sport arena United center (Airbnb, 2015). These campaigns were disseminated through the social media as well and led not only to an increased interest in current Airbnb users but also to new customers, namely sports fans.

Since 2010, Airbnb is as a part of its marketing strategy using an online platform called Craigslist. After placing room listings on Craigslist, Airbnb responds by automatic email appealing for a direct publication of the offers on the company's website. In addition, users are encouraged to share their experiences through social networking and with their friends through stimulating emails, which create a powerful effect of the word-of-mouth (Key, 2017). An important supplementary channel for digital marketing is, for example, Facebook especially because of the growing use of mobile devices and options for social connection among users. Facebook became in 2015 the most widely used mobile application (Eadicicco, 2015).

With the development of ICT and the Internet, in which social networks, forums, blogs, emails and various community channels are emerging, WOM acquires new forms of communication. *“Exchange of information and informal advice on certain products, services or brands through Internet communication channels”* is referred to as the electronic word-of-mouth (eWOM). eWOM is often found among people who have no previous relationship and may also be anonymous. The wireless anonymity allows consumers to share their opinions through network channels without revealing their identity. This unique feature encourages consumers to share their views and increases an overall volume of eWOM (Lee, 2009). Within the current online environment, Internet product reviews are considered to be one of the most influential types of eWOM because they can shape consumer attitudes and influence their

purchasing decisions. According to a global information, data and measurement company Nielsen (2015), consumer opinions that are posted online are considered to be the third most trusted online advertising format with the confidence of 66 percent of respondents from around the world.

4. Socio – economic impact

Since the invention of the Internet, people have started performing a great deal of activities through digital technology that has enabled interpersonal connections. Virtual social networking is a new form of social interaction stimulated mostly by the communication through social networks. Hence, digital communication has made it possible to connect known and unknown users, who exchange both positive and negative attitudes influencing the decisions of other users. Peer to peer markets became more user-friendly thanks to engagement of smartphone applications that increased convenience and flexibility of service and enabled real-time collaboration regardless of user location, thus the social impact of IS is related to the ability of consumers to adopt changes in traditional business models. However, the implications of the IS entail negatives, for example in the form of privacy threats, which may lead to the rejection of the implementation of these practices by the target segments (Dé, 2016).

This chapter is focusing on the role of IS in relation to social impact on the sharing economy. A comprehensive review will be provided by a number of research papers in the field of reputation systems and mobile payments and their initiation of the trust and security role in a digital world, which is an inseparable part by participating on the sharing economy. Botsman noted trust as 'currency' of the sharing economy. Many authors have agreed the trust is considered to be a main trait for a provision of sustainability of electronic commerce and the sharing economy as well (Hawlitschek, 2016). In the second part of this chapter, the thesis deals

with the economic impact of the IS with a focus on the cost reduction, while discussing the ways in which the processes of the sharing economy operate as efficiently as possible.

4.1 Reputation systems

Asymmetric information represents a significant disadvantage for the sharing economy users of various sectors. The lack of passengers' knowledge on the qualification of drivers is visible on the example of Uber and in the case of Airbnb accommodated guests have less knowledge of the quality of accommodation. The informational asymmetries resulting from the uncertainty about the new services provided or the quality uncertainty may lead to a lower number of shares or participations. Therefore, trust building between participants of the sharing economy is more crucial comparing to traditional businesses (Wu; Shen, 2018). However, sharing economy platforms help reduce the negative impacts of information asymmetries mostly by raising importance of the reputation systems through which potential users can learn about 'social capital' and build a trust between parties (Foldvary, 2002).

According Sikora and You (2013), the increased engagement in the feedback rating systems was prompted by ordinary consumers. As a result, online consumer reviews have contributed to a change in consumer perceptions, which has also significantly changed the way consumers purchase and even replace traditional consumer industries. These reputation systems have also become a specific resource for transferring information among users, representing a certain form of online advertising.

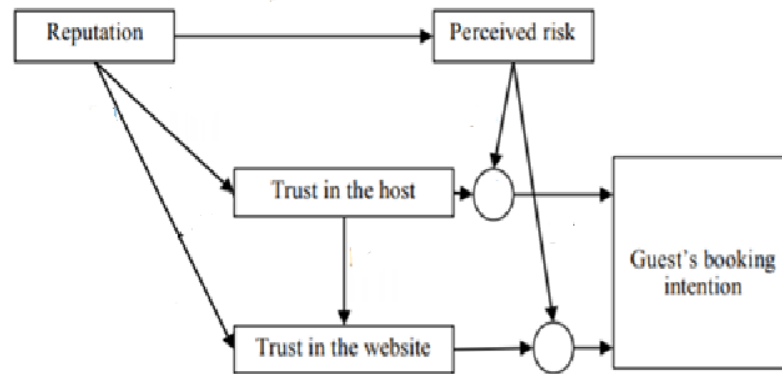
One of the most known components of feedback systems to date is considered to be eBay and its two-way review system, through which not only purchasers but also sellers express their experience (Thierer, 2016). The statistic review shows, in 2018, the number of active users of the most known selling platform reached 175 million (Statista, 2018). eBay users stand out on the platform through IDs. An entire process begins with a starting bid, description of items

with photographs and auction duration. The sales are running as an auction, where the higher bidding rate for item wins. After the auction ends, a winner pays a certain amount on the seller's account and receives the item in return. It is obvious that eBay transactions present a risky mechanism for purchasers who due to asymmetric information can be misled by misinformation of item's attributes or incomplete transaction. To avoid these issues eBay, rely on the reputation system that represents a way how platform builds a trust mechanism between both actors who are encouraged to rate each other (Dellarocas, 2002).

Dellarocas (2002) in his research of eBay platform provided insight into how purchasers' feedback on sellers, influence prices and likelihood of sale. He concluded that in riskier environment, this means by transactions with more expensive items, a correlation of feedback with a respect to prices and the probability of sale is relatively higher. Rating systems are well-proven as a mechanism for social control, where asymmetric information often occur, which can negatively affect the functioning of the community, due to omitting of formal control systems. These systems also represent a significant factor in the trust building relationships in the sharing economy (Dellarocas, 2002).

Examining the evaluation systems was dealt with by a number of research papers. According to Resnick, Zeckhauser, Swanson, and Lockwood (2006), the research of Dellarocas (2002) omitted some variables, causing an overestimation of his results. In the case of eBay, author did not consider other variables that could affect his findings, for instance, attractiveness of web sites or the way of items presentation. In an attempt to discredit uncertainty and support the trustworthiness, some sharing economy platforms are using services of other networks that creates professional presentation of their offer, for instance, Airbnb uses services of professional photographers supporting its accommodation offers (Papineau, 2016).

Figure 11 Trust framework



Source: Teng, et al., 2017

Teng, et al. (2017) in their research paper designed a theoretical framework presented in the Figure 11, for examination of trust effects on a room sharing platform Airbnb. The research concluded a positive relationship between trust in Airbnb platform contingent by increasing trust of host. Not only Airbnb but also other sharing economy platforms recorded an increasing emphasis on identity and quality control through IS (Mittendorf, 2016).

The studies demonstrate that greater confidence toward traders in the traditional businesses increases confidence in the trader's company (Doney and Cannon, 1997). This finding also has a similar effect in electronic commerce where trust in the participatory community positively influences confidence in the platform (Chen et al., 2009). Also, in case of Airbnb, evaluation systems are necessary tool for building trust in hosts-participants relations as well as within an entire platform.

The research of Resnick et al. (2006) and Yacouel (2012) examined the eBay and online hotel market concluded that subscribers' willingness to pay more is increasing when seller reaches a higher reputation score. Based on these finding, Teng, et al. (2017) have concluded that positive rating of reputation systems increases confidence in websites and hosts as participants positively respond to product ratings and rating of other platform members.

In the last phase, the research focused on the relationship of participants' perceived risk with respect to the reputation system that records the quality of the listings and experiences with hosts. Feedback system is intended to provide information to assess the probability of an unsatisfactory outcome. For this reason, the negative impact of risk perception by participants in relation to the positive ratings of the host is observed. When interact, participants compare the relationship between risk and trust. If trust is higher than perceived risk, it is more likely that participants will perceive the host or the platform of the sharing economy in a more positive sense (Teng, et al., 2017).

Möhlmann (2016) concluded that the interconnection of participants' social profiles with the sharing economy platforms creates the potential for the accumulation of social capital in a digital way from a single network or platform to the other. Social networks such as Facebook or LinkedIn collect comprehensive personal information about their users, facilitating access to digital platforms, for instance, to the lists of social contacts, subscriptions or posts. Accumulation of social capital from different contexts increases the amount of feedback and therefore has the ability to build a trust.

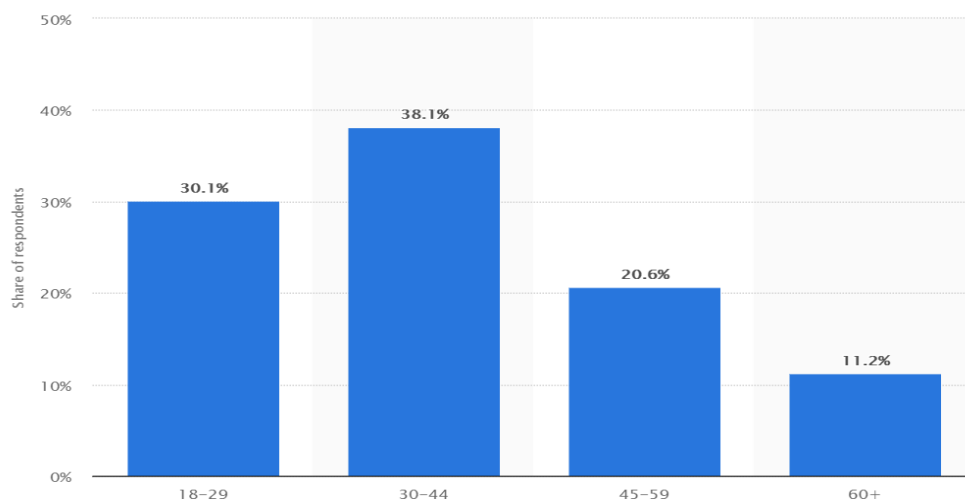
This claim was confirmed by Kamal (2016) who examined the impact of social presence, hence role of social networking profiles and recommendations of the participants for digital platforms. An in-depth survey conducted on the university students found a growing level of confidence among 76 percent of respondents from access of the sharing economy participants' profiles on the social networks. Likewise, 90 percent of respondents said, recommendations from their social circles published on social networks would have a positive impact on trust in digital platforms. However, the information flow within the sharing economy is not exclusively managed through social networks. Platforms usually share some information with the consumers through private channels, such as emails or SMS, which consumers consider as safer and more trustworthy (Ranzini et al., 2017).

4.2 Mobile payment systems

Payments through electrotechnical devices so-called mobile payments facilitate micro-payments in electronic ecommerce. Their development is mainly based on the expansion of mobile telecommunication technologies and the growing trend in the use of mobile devices. A large number of sharing economy platforms depends on the use of mobile payments, which present a significant role in the way consumers pay for services and goods (Bezovski, 2016). Mallat (2007) characterized the mobile payments as *“the use of a wireless device to conduct a payment transaction in which money or funds are transferred from a payer to a receiver via an intermediary, or directly without an intermediary.”*

Statista (2016) supposes in the period from 2016 to 2021 a progressive growth in the number of mobile payments that will more than double from 45.5 to 113.5 million of participants of the peer to peer platforms. The age distribution of the most U.S. users of mobile payments displayed in the Figure 12 is according to Statista (2016) between 18 – 44 years. This age range corresponds to the Pew's analysis (2016) of the sharing economy segments, discussed in the chapter 2.3, and includes the Millennials generation as well.

Figure 12 Mobile payments by age groups



Source: Statista, 2016

Paysafe's (2018) research suggests that mobile payments have disrupted marketplaces and users are more accustomed of a variety of electronic payments methods, the advantage of which is the realization and processing from anywhere in the world. Data collection was conducted in five countries: United Kingdom, United States, Canada, Germany and Austria, interviews were based on e-mail invitations and online surveys of 5 056 respondents. Survey results have shown that half of respondents prefer use of mobile payment compared to online purchases. In Austria, cash exchange systems such as paysafecard are more exploited than mobile payments. An underlying factor behind usage of the different forms of electronic payments and applications is considered to be security and trust issue that enables success of electronic commerce and sharing platforms (Karnouskos et al., 2004).

Mobile devices, especially intelligent phones, are the ideal tool for payment processes. Despite the improving security and progress of mobile devices, 30 percent of respondents of the Paysafe's (2018) survey claim they are not using this payment due to concerns that mobile device could be stolen. Critical is also the question of awareness of digital technology handling, 28 percent of respondents said they do not use mobile payments due to lack of knowledge of this method of payment. Hence, in the mobile and electronic payment environment is often a perceived obstacle the issue of trust and security of the payment system. The key factors in the secure of cashless transactions are data integrity, authentication and user anonymity (Mallat, 2006). The survey of Paysafe (2018) further indicates that in recent times, mobile payments are recording the changes in consumer behavior. 74 percent of respondents said their willingness to use the applications of mobile wallet for goods and services increased when the limit was raised.

The report of Aydin and Burnaz (2016) focused on the understanding of consumers' attitude and adoption of the mobile payments on the example of mobile wallet application. A collection of data consisted of gathering of almost 1 400 questionnaires from subscribers. The researchers examined an impact of personal innovativeness, which refers to a willingness to try new information technology and degree to which consumers accept innovation rather than others. The researchers suggested, individuals with a more positive approach to innovation have a deeper understanding of the functionality of mobile payments, leading to easier adaptation and ease of use of these systems. Thus, they developed the following hypotheses: Individuals' innovativeness has a positive effect on:

- a) mobile payments systems perceived ease of use
- b) use intention for the mobile payments systems
- c) attitudes towards the mobile payments systems

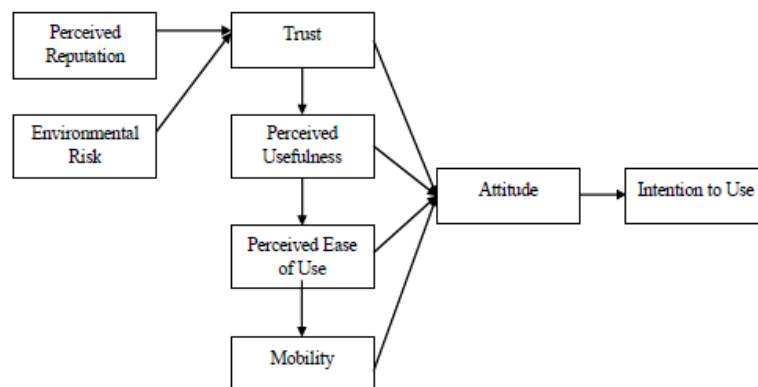
The survey showed, all three hypotheses were supported. Individuals with the higher score of innovativeness indicated the use of mobile payments easier thus, they showed more positive attitude and intention toward mobile payments. Furthermore, the study focused on the security issues that belong among the biggest concerns about the use of electronic payments and the importance of the attitudes of the users.

The security of mobile payment systems cannot be considered lower than other payment methods, such as usage of online credit cards, due to provision of a high level of security by modern information systems (Crowe, 2012). However, concerns about the security of mobile payment systems, not security itself, create an obstacle to the acceptance of these systems. In this sense, the users perceive as a major drawback, especially the loss or theft of mobile device, and the associated loss of personal identity. Moreover, due to the involvement of third countries

such as banks or telecommunications companies, consumer concerns about the misuse of personal information are increasing (Gross, 2012).

The hypothesis of a positive relationship between security with regard to the attitude and intent to use mobile payments proved to be less significant. This result supported Wiedemann's (2007) and Paysafe's (2018) findings, which also confirmed that security had no significant impact on mobile payments. These conclusions indicate that consumers have over time perceived problems of inadequate security of mobile payments as less important.

Figure 13 Adoption framework of mobile payments



Source: Dastan; Gürler, 2016

Dastan and Gürler (2016) analysis investigated the drivers that influence the adoption of mobile payments which subsequently leads to the intention to use them. Data collection was based on the sampling method consisting of 225 individuals through online questionnaires. A theoretical framework constructed for this survey is visible in the Figure 13. For the purposes of this study, researchers used determinants of perceived reputation and environmental risks that suggest an impact on the level of trust. In the context of environmental risk are understood users' concerns associated with the security of electronic transactions that increase risk, respectively reduce confidence in wireless transactions due to possible misuse of personal data or monetary loss (Chandra et al., 2010).

Following to the adoption framework, the researchers generated the number of hypotheses and concluded the reputation has positive impact on trust while environmental risk influence the trust in mobile payments negatively. Similarly, the factors of trust, mobility and attitude showed positive relationship toward adoption of mobile payments. However, a positive impact of determinants of usefulness and ease of use on the users' adoption of mobile payments did prove to be significant. The issue arises in the pre-existing experience with mobile payments.

The positive relationship between the ease of use of mobile payment applications has been observed especially among technology savvy users. Experts' works differ in this respect, while some detect the dependent relationship between simplicity of use and adoption of mobile payments, others reject it. One of the most striking observations is finding that the greatest impact on the adoption of mobile payments compared to other indicators represents the mobility factor. The results of the study suggest that mobile payment applications give consumers considerable advantage in terms of time and localization aspect, encouraging consumers to incline the usage of mobile payments (Dastan; Gürlü, 2016).

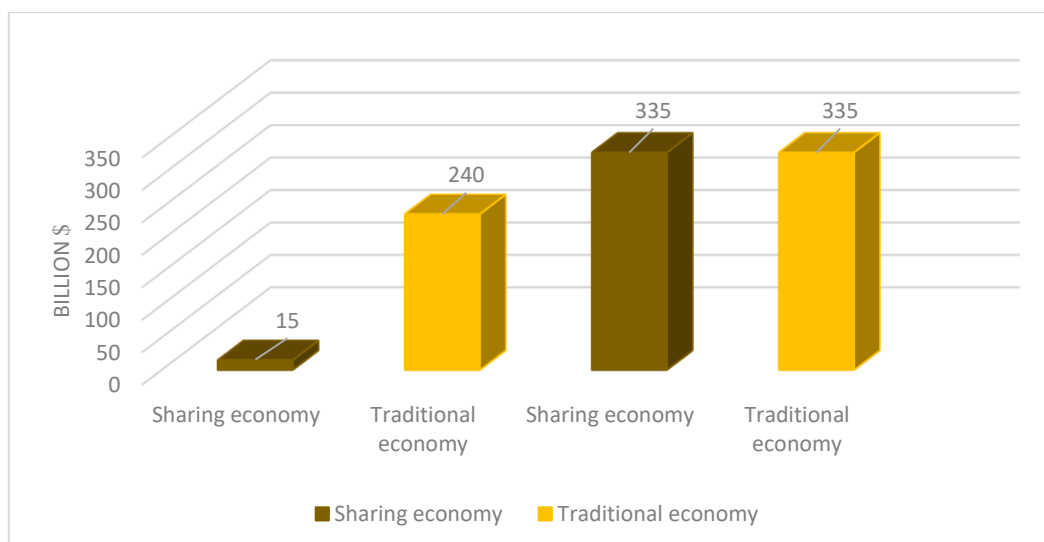
Recently, mobile payment acceptance has seen a significant increase, mainly as a result of participation in peer-to-peer markets, causing a significant disruption in the traditional business models and changes in consumers' purchasing attitudes (Wilcox, 2018). According to the survey of The Manifest (2018), testing the 511 smartphone users of the peer-to-peer markets, almost half of the participants use mobile payment applications such as PayPal that recorded the most frequent use. Mobile payment applications have demonstrated the most significant use among 51 percent of the Millennials generation, which is only 3 percent more than the age category up to 54 years.

Economic impact

The rise of the sharing economy is escalating and affecting various sectors, mostly transportation, accommodation, on-demand professional services, sharing or renting the goods and purchasing or selling the goods. The study of Eurobarometer suggests, more than half of Europeans are familiar with the concept of the sharing economy and one in six is actively participating on it. It is estimated, that around 5 percent of Europeans is already participating on the sharing economy platforms as providers of services and goods (Mastercard, 2017).

An estimation of the official size of the sharing economy is extremely difficult, because many providers are private. The comparative measurement of PwC (2014), displayed in the Figure 14, forecasting the revenues of the five most significant sharing economy sectors (accommodation, car sharing, online staffing, finance and music streaming) and traditional sectors states, in 2025 the revenues will reach 335 billion dollars comparing to year 2013, when the revenues of the online platforms recorded only 15 billion dollars.

Figure 14 Revenues of the sharing economy



Source: PwC, 2014

The expansion of sharing economy that is facilitated through the online platforms results in the numerous economic impacts. Traditional businesses are therefore more motivated into entering the sharing economy in any form to maintain their market position and social sustainability (Matzler, et al., 2015). Although it seems at first sight that the sharing economy is based on the use of existing capital, hence exclusive consumption where no production exist, after the further consideration, it is clear that the sharing economy has, for example, given the opportunity for 'ordinary people' to engage in its business models, which have become its direct participants, either in the form of providers or users (Coppola, 2015). As a result of economic crisis, the sharing economy observed a significant increase, providing an option of alternative incomes and wide range of competitive, less expensive offers compared to traditional business.

4.3 Costs reduction

As already discussed, the sharing economy is associated with a number of benefits both for providers and for users, among other advantages, the platforms noticed a considerable reduction in transaction costs such as costs of switching, searching and negotiation. Without the Internet – based platform implying sharing services, these costs would be too high and the development of the sharing economy in the commercial markets would be very difficult. The cost reduction in the electronic commerce therefore represents a considerable advantage in the form of removal to a certain extend the entry barriers for new providers considering entering into the market of the sharing economy (Cordella, 2009).

When trading within traditional business models, a significant transaction costs are visible, for example commercial lawyers are responsible for concluding and negotiating commercial contracts or real estate brokers represent a mediator for the purchase of real estate properties between the sellers and the buyers. The platforms of the sharing economy, which include a whole range of innovative businesses such as Airbnb, are able to significantly reduce these costs. The cost of contracting or client search processes was much higher and harder for

private businesses than, for instance, tradition industries offering accommodation or transport. The sharing economy platforms recognized this market niche and created the infrastructure for easier access to capital and services. (Henten et al., 2016).

The research of Henten et al. (2016) examined the changes of transaction cost on the business structures on the example of Uber and Airbnb. Hence, disruption of the traditional commerce originated by emergence of the sharing economy. The research study was based on the functioning of the business models of both platforms focusing on the value chain that was comprehensively analyzed in the chapters 2.3.1 and 2.3.2.

The study concluded an application of the theory of transaction costs, being a basic tool for the functioning of the sharing economy. Examples of Airbnb and Uber platforms point to a significant reduction in transaction costs between providers that got an opportunity to monetize the underutilized capital and participants that got possibility of choice among larger market offers for lower prices but for comparable quality. As a result, the reduction in transaction costs has significantly contributed to a decline in the prices of goods and services offered in the sharing economy. The sharing economy has not only supplemented the existing markets, but has created room for new opportunities, replacing traditional service providers.

Cost savings can be observed on the example of Uber, where applications reduce the searching time between the customer and the driver, which is a common practice for traditional taxi providers. Thanks to geolocation technologies Uber applies, it is possible to match the nearest localized driver with the rider. In doing so, Uber effectively managed to reduce transaction and search costs for rides to almost zero (Furchtgott-Roth, 2016). Farronato and Fradkin (2017) analyzed the impacts of Airbnb on the hotel industry in the United States market. The study recognized, that Airbnb caused a 1.3 percent fall in reservations and a loss in value of 1.5 in hotel chain revenues by its entry into the hotel market. The survey was also found in

2014, awareness and attendance at Airbnb reduced the profits of the hotel industry by 3.7 percent (Gerdeman, 2018).

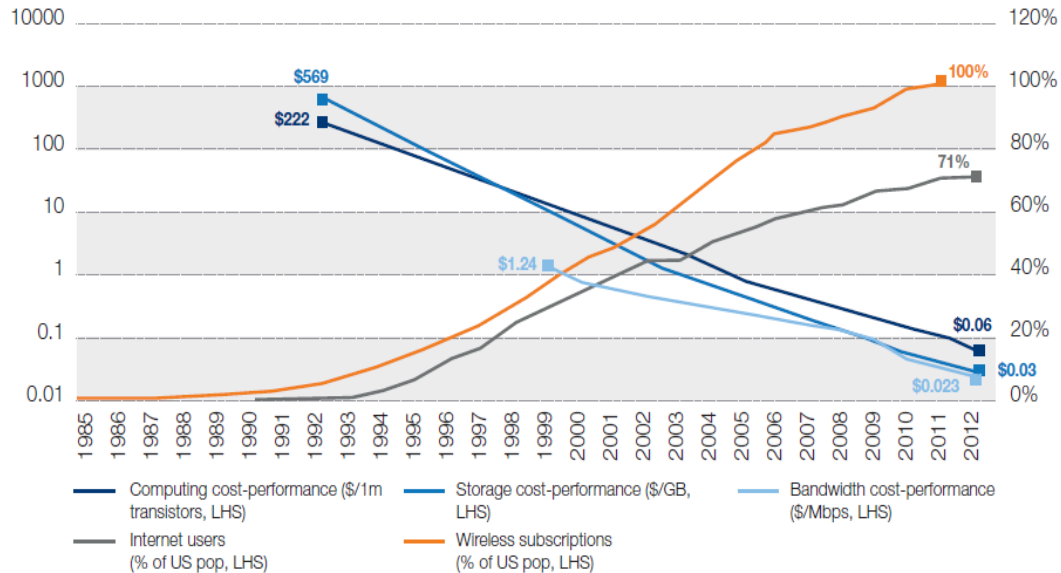
The advantages in the reducing costs were also found by implication of the mobile payments into business models, especially of the smaller businesses and platforms mediating the financial services. The revolution in the sharing of digital currency harmless traditional financial intermediaries with the advancement of online financial peer-to-peer platforms such as PayPal. The study of Finder (2018), consultancy company focusing on the financial products, compared money transfer through PayPal against typical bank. The analysis found PayPal fees of transfer to be more financially compliant, similarly the exchange rates were lower thus, more affordable for users. The process of exchange rate evaluation is the same by both companies, depending on the market rate added by a margin. Considering the speed of transfer, PayPal recorded faster transactions within two PayPal's accounts than traditional banks.

Sharing economy platforms strive to increase trustworthiness and awareness of mobile payments, thereby benefiting from the reduction of transaction costs to the minimum. The growth of mobile payments is resulting due to the proliferation use of smartphones representing a tool to transfer digital currency, changes in consumer behavior, and the simplicity and security of these payments. The generation of Millennials is the largest group of users of these systems, as well as a major segment in the sharing economy (Oldham, 2018).

According to Business Insider (2016), between the years 2015 – 2020, 80 percent growth in the mobile payments is expected to the volume of 503 billion dollars. According to experts, it is able to cut mobile payment costs up to 20 percent, which is a significant surplus, especially for companies to save a considerable amount in the long-term (Capturecode, 2014). By traditional banking, transaction costs include among others, conversion, storage and calculation fees. Likewise, by accepting the card payments, businesses cannot avoid monthly charges, which result in the increasing transaction costs. Payments through mobile systems

reduce these costs to a substantial extent, which puts pressure on financial intermediaries to reduce billing charges for transactions carried out through them (Prime Indexes, n. d).

Figure 15 Decreasing costs of technological capabilities



Source: Schroders, 2016

Deloitte (2013) study focused on cost change in the development of technological capabilities related to their performance in the period of one decade. In the Figure 15, there is a visible decrease among computing, storage and bandwidth indicators, enabling digital infrastructure the facilitation of information flow and interactions, space for innovation, faster transfer and collection of data. On the contrary, the numbers of internet users and wireless subscribers in the United States recorded a significant growth, providing opportunities for information and resource sharing thus, participation on the sharing economy.

5. Environmental impacts and sustainability

Since sharing platforms are based on the concept of temporary secondary rentals, hence, abandoning of the purchase of first-hand assets, the sharing economy contributes to environmental protection in the form of reduced use of energy resources needed for the production of consumer goods or reduction of emissions. For example, instead of buying a car, the sharing economy provides many alternative options for individuals who do not want to spend a considerable amount of their savings or simply use car transport rarely. Multiple and diverse offer of eBay platform is selling second-hand products for considerable lower prices. Car rental possibilities are mediating through B2C companies such as Car2Go or C2C also known peer-to-peer markets as Turo platform. The opportunity to rent a car and thus the driver with the own car provides Uber (Frenken, 2017).

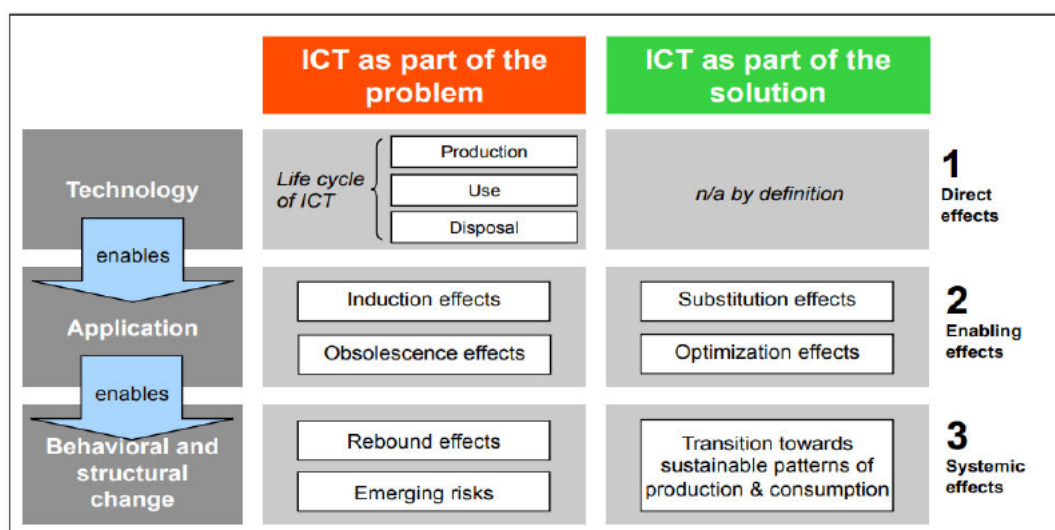
Given that the market of the sharing economy is constantly growing, and the providers of peer-to-peer markets are private persons, a clear analysis of the environmental impact of the sharing economy is very uncertain. However, the study of Frenken (2017) has found that sharing in B2C and C2C markets reduce emissions by 8 to 13 percent. Moreover, Franken concluded a certain visibility of the impacts of sharing economy on the environment, but in comparison with expectations, the results are smaller than many would expect.

The growing number of the world's population increases the tendency of consumer demands. Due to the limitation of natural resources, the environmental approach is increasingly associated with business activities. Additionally, environmental consequences are associated with the development of new businesses and therefore economic development (Burcea, 2010). Technological innovation is precisely the means for substitution or efficient use of goods in an effort to maintain economic prosperity. New business models of the sharing economy platforms, enabled by ICT are the optimal solution for re-use of existing resources. The

underlying factor of the emergence of sharing economy is informational technology, but the question remains what role technology plays in terms environmental impact and environmental sustainability. In general, experts predict that enterprises of the sharing economy have sustainability potential in both local and global markets (Frenken, 2017).

As has already been shown in the preceding chapters the information technology has a considerable impact not only on social and economic but also on environmental surrounding. The success of introducing new business models of the sharing economy has led to the changes in consumers' traditional thinking, especially through the ubiquity of the Internet and the widespread of environmental awareness. Chowdhury and Veeramani (2015) studied the environmental impacts of IT based on the resource-oriented analysis, which consequently lead to company's sustainability. The Figure 16 illustrates process stages that result into sustainability outcomes.

Figure 16 Environmental impacts of ICT



Source: Pouri, 2018

In the first order, they considered direct influences of IT in relation to the environment. The researchers appeal to Hilty and Ruddy (2000) finding, who recorded 98 percent of waste in computer production. Subsequently, Chowdhury and Veeramani pointed out the negative impacts of transport services related to the production of technology in the assembly centers, which are due to lower production costs mostly located in countries other than a country of origin thus, costs related to outsourcing issues. Among other direct effects belong an increasing amount of energy consumed in response to higher demand for ICT, which is reflected in the growth of electronic waste. The study thus involved the entire life cycle of information technology and thus production, exploitation and removal. At each stage, the analysis observed negative impacts on the environment.

A report of Burcea (2010) shows that in the United States 8 percent of the energy consumed is associated with the processes of the information flow on the Internet. Despite the fact that technological innovation has succeeded in regulating energy efficiency in the IT area, the demand for ICT is growing. Pouri (2018) argues that degradation of negative environmental impacts will be possible within the sharing economy only if it does leave the use of any blockchain technology in its business models.

By considering the enabling effects thus, the indirect impacts of the second order that supported the incorporation of ICT in business models, the positive effects on the environmental surrounding are observed. Enabling technology of IS supported the rise of the sharing economy platforms and contributed changes in production and consumption processes as well as the distribution way of goods and services (Chowdhury, Veeramani, 2015). These improvements led to changes in the business values and supply chain, for instance, substitution in the music industry replaced material assets such as CD for intangible mp3 files. In the case of sharing economy, as has been demonstrated the accommodation platforms compared to the hotel industry, have a less negative impact on the environment, which has contributed to the

awareness and sustainability by participants (Airbnb, 2014). From a long-term perspective, it is assumed that environmental impacts of platforms would reduce the demand for accommodation facilities and therefore their construction could be limited as far as the interest in sharing increases. However, in this argument the views of experts are dissolving, and many of them question the validity value of statistics (Pouri, 2018).

The last stage of ICT impacts has significant systemic effects defined as “*the long-term reaction of the dynamic socio-economic system to the availability of ICT services, including behavioral change (life styles) and economic structural change*” (Hilty, 2014). The last phase is considered as the most important in creating a relationship of sustainability between sharing economy platforms and consumers, taking into consideration changes in the consumers’ lifestyle patterns and socio – economic frameworks, thus structural changes.

Based on these assumptions, Pouri points out that sustainability in commerce and therefore in the sharing economy depends not only on the subject itself but also on the associated resource. In the case of increased interest in ride sharing services, lower demand for newly manufactured cars is expected, related with the reduction in production costs. From the point of view of effective sustainability, it is therefore necessary to take into account the resources necessary for the production and consumption. In order to obtain a comprehensive understanding of the impact of the sharing economy on the environment, it is therefore inevitable to consider the long-term effects of the life cycle resulting from the value obtained through the participation on the sharing.

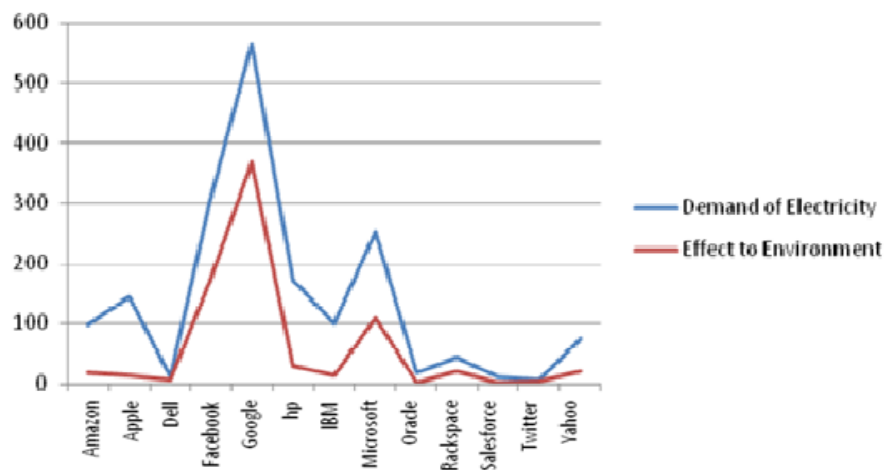
Taking into account the environmental impacts and sustainability, it is necessary to consider not only the business models and practices of companies, but also the complementary practices of the institutions operating in the market (Schor, 2014). Considering, the technologies that stand for innovation and integration of the sharing businesses, Frenken (2017) points to the importance of Internet of Things (IoT). The internet of things refers to “*a system*

of interrelated computing devices, mechanical and digital machines, objects, or people and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction” (Rouse, 2016). The application of this technological innovation into business models enabled 24-hour monitoring of participants’ purchasing behavior and therefore the handling of shared goods. The benefits of the use of IoT, implements means to monitor sharing objects, which simplifies the transmission of communications and hence access of goods. In addition, the ability of operators to track localization of the sharing goods, it is clear that technology helps prevent the device from being stolen or misused. The advantage of knowledge about device placement, helps to reduce the problem of "leaving" users.

An analytical company Gartner (2017) forecast that by 2020, IoT will connect more than 20 billion devices. In 2013, estimation of the worldwide electronic waste represents 53 million tons, comparing to around 67 million tons of new electronic devices entering the market (Ormazabal, 2013). Taking into account environmental impacts and sustainability, Frenken (2017) emphasizes the importance of political interference and pressure from restrictive laws, which seek to stimulate businesses to behave most favorably towards the environment and support the efforts of international companies, trying to reduce the negative aspects of environmental damages.

According to Jayraj Nair, global head of IoT, technology that is behind the growth of the sharing economy thus IoT and connectivity systems, has changed the way of social connections among participants and significantly disrupted business models. (Wipro Limited, 2017). The report of Wipro Limited (2017), global consulting IT enterprise, found, 98 percent of surveyed business leaders claim that this technology will have a strong positive impact on sustainability in future trade.

Figure 17 Environmental effects of electric consumption



Source: Chowdhury, Veeramani, 2015

Chowdhury and Veeramani (2015) were in their study observing an environmental impact of ICT and its sustainable development. On the basis of the mathematical formula, they calculated the amount of energy consumed in 13 selected companies and its impact on the environment. The sample of tested enterprises is represented by businesses operating in the sector of ICT such as Microsoft, IBM, Apple, Dell etc. A result of their study is depicted in the Figure 17. Based on the indicators of their calculations they resulted the more amount of electricity companies demand, the more harmful effects they have on the environment.

From the illustration, it is clear that from the selected companies Google, Facebook and Microsoft are considered to be the largest energy consumers, which are an inseparable part of the sharing economy by selling electronic devices or mediating social interconnection. Based on the results of the study, researchers concluded: in general, increased interest in consumer goods has a negative impact on the environment. Achieving environmental sustainability could be possible if demand for consumers goods would be reduced. One of the positive effects of the sharing economy is an effort to use second-hand goods, which leads to a decrease in production.

6. Conclusion

The importance of platforms and models of the sharing economy has gained momentum in recent times. The essence of the sharing economy is to identify efforts to streamline the exchange of goods and services and to meet the needs of individuals in a particular community. The spectrum of the sharing economy is characterized by the use of modern technologies that facilitate the process of sharing goods and services, but in particular the possibility of cost savings by consumers.

Through the sharing economy, it is possible to achieve a more efficient use of goods or services owned by ordinary people, which can affect the individual's behavior. Individuals can thus move away from a consumer society where it is important for people to own goods or services towards a society in which people eliminate the need for ownership and focus on sharing goods and services with the community of people for its full use. In many countries, the area of the shared economy has greatly expanded the competitive environment created predominantly by traditional economy subjects, thereby reducing the cost (prices) of services provided and shared goods.

However, the sharing economy is not a new business model, but it has expanded massively thanks to the informational technology. The ordinary providing of a night accommodation to friend to avoid paying a hotel is the primary model of the sharing economy that has always worked. using applications, however, moved from a group of close relationships to a global level. In the sharing economy, entrepreneurs can de facto become anyone who has something to offer. The provider can get a profit from a thing that would otherwise be unused, and the buyer obtained the service or the product cheaper than buying it or used the rental within many entities in the traditional economic models. The area of the traditional economy could, in some sectors, be exposed to oligopolistic market behavior or higher prices due to lack of

competition between service providers. It is precisely the possibility of involving a broad mass of people in the process of sharing by offering their own capabilities in the form of services or renting owned goods through the sharing economy platforms that significantly increase competition in the traditional economy.

The purpose of this thesis was a comprehensive study of the impact of informational services used by platforms of the sharing economy. The Economic crisis in 2008 is considered to be a breakthrough in the area of sharing. As demonstrated, the innovative technologies have significantly disrupted business models of platforms, making the way of sharing in the global dimension much easier than ever before. The innovativeness in the new ways of transmission of sharing capital and services involves the integration of ICT-platform as mediator in the sharing relations. A considerable disruption, comparing to traditional brick and mortar intermediaries, lies in the fact that platforms are not the owners of sharing items.

Among other things, the main reason for the expansion of the sharing economy is the number of people with Internet connection, especially mobile Internet and increasing number of smart phones users. The studies showed the number of 'connected' people in the world is growing every year. Moreover, by incorporation of the disruptive technology into business models of sharing economy ease an interconnection and communication of participants that are located across the world. Thanks to applications that have become the place for sales and purchases thus, digital stores and the technology driving them such as cloud and storage services, the platforms are able to gather and evaluate data in the simplest way.

As has been proven, the sharing economy threatens traditional businesses with its diverse offer, friendly prices and omnipresence. As consequence, technological innovations in the sharing economy have led to a change in the mode of thinking of traditional suppliers of goods and services, which are nowadays more often incorporating technological progress into their existing business models in effort to compete the sharing economy platforms. An example

might be financial sector and recently introduced banking applications like George by Erste Bank. Nevertheless, the population is positive toward the use of the applications and a manipulation with them is basically very simple, it is necessary for users to have at least a basic knowledge about their usage. This finding has proved to be crucial for platforms, as people with less knowledge of ICT are less likely to participate on the sharing activities.

Since interaction through platforms is carried out between two completely unknown people, there is a strong need to build trust between the purchaser and the provider, thus, between two entities that have had no previous personal contact. In the sharing economy, trust is placed not only on the providers of goods and services but also on the platform itself. Therefore, for building a trust, platforms are using reputation systems as well as social networks. Social networks are considered as a type of reputation systems that significantly influence the decision to participate in the sharing economy.

The issue of trust in the sharing economy is very important for the platform providers because as shown, the trust in seller increases the overall trust in the business thus, platform. If there exist low trust between supply-demand actors, the existence of the sharing economy would be impossible. As payment transfers are made through mobile devices, the perceived risk of mobile payments is another important factor influencing the functioning and participation in a sharing economy. As has been shown, the most populous group of mobile payments users by age distribution, is the population that includes the segment of the sharing economy. Technological advancement that has increased security in the mobile payment systems, has increased the use of these services. Hence, trust associated with the reputation systems, mobile payments and providers of sharing assets and services is increasing intention to participate in the sharing economy services.

The technology incorporated into business models made it possible to liquidate transaction costs on the minimum level that are normally associated by doing businesses, and in the case of micro-enterprises, transaction costs would absorb a large part of the profit from the business. For example, the development of virtual platform is requiring single expense and therefore there is no need to pay monthly rents or insurance. Additionally, due to technology used, platforms could have excluded from its business models other factors, which are necessary for traditional businesses.

Even when considering environmental issues, the impact of the sharing economy itself is significant. However, taking into account the technology, the studies do not lead to a single conclusion. The amount of electronic waste is rising globally, but it is not possible to clearly state to what extent the sharing economy is involved. Generally speaking, the enterprises can achieve environmental sustainability by decreasing production and consumption. Moreover, political restrictions put pressure on the companies to produce more environmentally friendly. The issues of environmental impact leading to the sustainability is still challenging.

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