

## THE ROLE OF IT IN SHARING ECONOMY

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**Abstract:** *The satisfied customer is a customer who appreciates the quality of the goods and recommends them to others. Achieving a high level of satisfaction is not easy, as he is often well-informed, is awaiting something new, looking for new experiences and ways of accessing it, and prefers their easy availability, often on demand. The way how to improve its level of satisfaction lie in exploiting the innovation potential that creates the basic assumptions for the sharing economy. That economy does not create a new market or new customer; its aim is to offer services in other ways or in a new form with the aim of satisfying as widely as possible the various demands of customers. According to the fact that especially young people prefer to use new ways of acquiring their experiences or to change their forms of availability, the use of technologies and IoE takes your place in these processes. The obstacle in this process is the need to rapidly develop smart solutions or devices that meet the broad customer requirements. In this process, spin-off and start-up companies, supported by university centers, have a great potential as they directly support the transfer of the latest technology into practice. Summarizing the best practice solutions, we should eliminate barriers to successful spin-offs and start-ups as well as SME business doing in competitive practice. Using the model of sharing economy, the effectiveness of such economics will be researched. Using the survey method, we will evaluate the views of 189 managers of Slovak SMEs and 26 managers of IT companies related to the enhancing the use of innovation opportunities and IT potential in practice. Comparing our research results with the results of similar research activities in the EU, we try to identify the barriers that prevent them from exploiting their potential using the statistical methods and validation tools that are part of the SPSS program. Based on the analysis and synthesis of research outputs, we summarize the recommendations how to improve customer satisfaction with ways of sharing goods using the latest technology and related platforms.*

**Keywords:** *sharing economy, spin-off company, knowledge and technology transfer, innovation, platform B2B*

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### 1. INTRODUCTION

People are closer to each other due to professional internet applications. It creates the possibilities to perform their activities not only in a classical way, but they also look for opportunities to perform them in a virtual environment as well. The better conditions for sharing technology, the more effective the levels of sharing. The development of intelligent smart solutions, tools and devices can meet customer requirements more complexly. New solutions should be available from different environments using unified solutions for different

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applications. However, their development and application in practice will not succeed without the need, willingness and ability of small producers to offer, develop and exploit their potential in the processes of production innovated services or products offered as a supplementary service upon request at the point of provision of the main service or consumption of the product. In these processes, start-up and spin-off companies, supported by university centers, have a great potential as they directly support the transfer of the latest technology into practice. Therefore, nowadays more attention should be paid to research on the conditions for setting up and supporting the business of doing spin-off companies in regions where innovation potential is lower or completely absent [1]. In this paper we should evaluate the conditions for the development of sharing economy from the point of view of IT transfer management as a tool for sharing products or services in that way of doing business. We will also examine the use of economics model as a tool for management of environment for sharing technologies.

## **2. THEORETICAL BACKGROUND OF SHARING ECONOMY**

Many people, especially young people, prefer the dynamic availability of products and services provided in non-traditional ways, where they prefer to:

- discover something new, to gain experience in a non-traditional way, or as an effort to give up the traditional models to meet their own needs,
- change in lifestyle, value, especially preferred by younger generations, which is associated with property ownership, product gathering, etc., and more preferring to survive something new.

They are able to share their own goods and services with each other, either for free or for financial or non-financial remuneration [2]. This fact is confirmed by the results of recent studies [3], where about two-thirds of respondents said they are heading towards a less materialistic lifestyle, and four fifths of respondents believe that rent has greater advantages than ownership. Despite of, there will exists a small part of customers, whose do not prefer sharing something in their own ownership.

### **2.1. MACROECONOMIC AND MICROECONOMIC CONDITIONS OF SHARING ECONOMY**

From these points of views, we can state, that a sharing economy does not create a new market, it mainly supports the use of non-traditional ways of products or services providing. People can switch from being only consumers of classically supplied goods or services to those who drive new services enriched with new experiences or events. They can become designers as well, in multifunctional use of former buildings and spaces, or in sharing cultural activities. For them it is more acceptable to have an access to products or services when they need it, which means moving away from owner-right to user-rights [4].

The sharing economy can also support the growth of employment and enterprise performance. In the key sectors of sharing economy, such as finance, accommodation, transport, small domestic services and professional services, the number of operations is expected to increase up to twenty times in comparison with the situation in 2016 [5]. It is due to the opportunity of employing people in productive age, post- as well as pre-productive age, as they are not only consumers but also providers or intermediaries of the various products or services.

The new ways of experiences gathering give them more realistic information related to the products or services properties, marketing-oriented communication of brand and its ownership [6]. They will also feel better in their decision-making.

In the sharing economy also occurs the disadvantages because of the conditions for doing business are different, which is why an unequal competitive environment is formed [7]. In order to increase the benefits of that economy, it is necessary to deal with various specific issues such as regulatory treatments, conditions for sharing or easily to dispose with non-traditional means of accessing products or services.

There is a need to regulate the interconnection between supply and demand from the point view of:

- customers, where it is the comfort associated with the fact that information and communication are mediated via the computer screen or mobile display, the tool of connectivity support is continuously updated, has its on-line support as well as support for its own transactions.
- the information platform, where it is possible to reach a much wider range of customers; the modern communication platform minimizes the level of information asymmetry where both parties have high quality information for their transactional decision making. It should also lead to savings on transaction costs [8], as follows:
  - search and information costs - platforms offer fast and often clear and comparative product and service information to help reduce loss due to lack of information or knowledge of the product or service,
  - negotiation costs - communication and contract costs,
  - implementation costs - shipping agreement, payments, insurance, guarantees, etc.

It is also necessary to address the microeconomic problem where the modern sharing economy combines two unfamiliar partners. In the case of private transactions, the success of cooperation between the partners strongly depends on the degree of fairness and responsible behavior towards each other based on mutual personal relationships. The trust among partners is affected by the degree of personal acquaintance, which is why it is necessary to be respectful and anticipate the behavior of its partner. As business support as well as communication between partners and providers is based on the electronic business support that is fully utilized, it is also possible to exploit the application as a service quality regulator. Many applications offer the ability to perform back-up control by which platform providers try it maps the dissatisfaction of their clients. In such developed applications, there is a possibility that unsatisfied clients can report their negative experiences, record incidents, and so on. This option addresses problems associated with poor quality of service or product properties that may occur due to the ways of their provision. In such situations, it is important to build on the support of a single electronic platform and to develop an area where electronically-supported applications or other means will be easily accessed.

## **2.2 THE BASIC CONDITIONS FOR SHARING ECONOMY DEVELOPMENT**

In a sharing economy, the common discussion is focused on the problem, how to create a platform for sharing the involved elements and how to support their accessibility.

If companies want to benefit from these ways of business doing, it is necessary to provide the broader accessibility of:

- modern information and communication technologies,
- modern information platforms and internet,
- large databases accessing for sharing of public goods (products and services),
- technological solutions, as well as smart devices – smart phones that connect people to each other and create an opportunity to accessing professional internet applications much closer,

- availability of the on-line payment systems [9].

It is very important to bring innovations to traditional areas and sectors as well. It is necessary to deal with the issue of technology transfer and make them accessible for a wide range of users, where the new ways of ICT and services transfer will be formed and practiced, and forming changes in B2B platform delivering. The new solutions may support:

- new style of communication so that both the provider does not restrict the applicant,
- intermediaries will dispose with new opportunities: not only to try the role of basic and also supporting or additive services providing.

In particular, the possibilities of technical intelligence can be exploited.

### **2.3. TECHNICAL INTELLIGENCE AS A DRIVER OF COMPETITIVE INTELLIGENCE**

In the end, the business environment evolves more dynamically, where continuously expanding markets, globalization, or new technologies are the driver of changes, as in [10] it is shown. It is also confirmed the opinion of Porter [11], that the importance of technology and also innovative business processes and countries can significantly improve the quality of the business environment. Together these digital technologies, often cumulatively referred to as the Internet of Everything (IoE), which has a profound effect on how organizations and industries are transforming, often as a result of new technology-enabled business models [9]. As in [12] it is stated, technical intelligence allows to identify and exploit opportunities arising from technical and scientific changes. It allows also to identify and respond to threats of such changes. Stability in this area is as much as needed. As it was stated in [13], the time horizon of technical intelligence was usually an interval of six to twelve months in the past and five or more years into the future.

At present, the university research and scientific departments and their staff, which devote considerable resources and capacity to research and development activities, represent a progress in the field of technological development and delivery.

As the research and development sector is not continuously linked to business practice, it is difficult to create the right conditions for technology and knowledge transfer to practice. The basic barriers as excessive bureaucracy at academic centers that prevents the private sector from entering the funding of science, are occurred. The same situation is in the private sector also due to the lack of long-term investments in science and research. The goal is to convert technology and knowledge potential into usable products or services.

In this space it increases the role of spin-offs or start-ups as a driver of technology and knowledge transfer into the practice.

### **3. POSSIBILITIES OF BUSINESS AND LEGISLATIVE SUPPORT OF SHARING ECONOMY**

In spite of the fact that it is difficult to precisely set up the concept of new companies as well as the criteria for creating the best conditions in accordance with the support of sharing economy, we have tried to identify the possibilities such as spin-offs or start-ups represent.

It is due to their innovative, scientific and technological potential, which is a guarantee for future success of such companies. Therefore, we have tried to define spin-offs and start-ups and their role in sharing economy.

### **3.1. THE ROLE AND TYPOLOGY OF SPIN-OFFS AND START-UPS**

As states in [15], the small companies – so called spin-offs play the special role, which consists in research and knowledge transfer. Spin-off is a newly founded company co-founded by a university or research laboratory that owns the licensed technology and applies it to the market with the aim to leverage available academic knowledge for commercialization (firstly established by [16]). This company is a profit-oriented entity. This fact is confirmed by many authors [1], [17] - [19] who state that spin-off founding helps to create an innovative company that guarantees collaboration with universities and transfer knowledge and technology from universities to practice. Both factors, the founding of spin-off companies and technology licensing, are the basic assumptions for successful technology transfer into real practice. Certain universities, however, do not use the term spin-off but rather use the term start-up or the term employee's enterprises designed to commercialize intellectual property (IP). Spin-out is also often used instead of spin-off, however, upon closer analysis, both of these terms have a similar meaning.

Many authors have tried to identify common aspects in different spin-off definitions. In [20], spin-offs were divided into two categories:

- spin-offs where the inventor takes part in the business position (active commercialization of proprietary inventions),
- spin-offs where entrepreneurs are not inventors but hold rights for the use of university inventions (position of inventor from the university is replaced by a manager from the practice).

Another important feature is that the university still remains as a co-owner in a given spin-off company, but that company can flexibly and freely create your own - unique intellectual property (IP). The term spin-off is also described as an innovative company established for the use and further development of academic IP. They state that the definition of spin-off within academic conditions reflects various differences in the perception of requirements related to IP commercialization as well as differences in maturity of business environment in different countries. As we have found, in order to define the concept of spin-offs, it is possible to find many different criteria and approaches to their categorization. As in [14] stated, it is possible to identify 14 common elements or categorization criteria of different definition and 46 spin-offs categories. These fundamentally mentioned categorization could be extended with new categorization criteria with respect to the sector in which the spin-off company operates, its business orientation or in terms of company size according to the total number of employees, etc. Next factor that is more important in terms of properties spin-offs is the region. The region where the academic institution is located determines the access to the rights of the various parties, also the IP rights, the type and definition of spin-off and start-up companies. We can state that the intellectual property of academic institutions can be viewed as public, private but also social resources. The advantage is, that many spin-off definitions are usually incorporated into internal directions, regulating IP protection and the ways of commercialization at a particular university. At the end, we can summarize, it is more important to pay attention to the regulatory framework, as well as to create acceptable legal or technical conditions for doing business in sharing economy, which is also an obstacle to linking the school and business sectors.

### **3.2. LEGISLATIVE SUPPORT IN THE AREA OF SHARING ECONOMY**

The European Union (EU) has its own legal system, whose main rules and principles are laid down in the founding Treaties [22]. The EU can adopt legislative acts, which member states must comply with and apply. As we have seen, neither the EU nor its own countries have yet defined a single legislative framework that would govern the area of the sharing economy as a whole. In this area, divided into two parts - the platforms of the sharing economy and users of platforms, however, regulatory measures can be found to help producers create better conditions for the operation and support of business activities in the electronic virtual space. In the study [23], authors summarized a set of measures concerning the legal and regulatory framework for the European Economic Area (EEA), as follows: Directive for E-commerce 2000/31/EC, Services Directive 2006/123/EC, Rights Directive 2011/83/EC, The Unfair Commercial Practices Directive 2005/29 / EC. In 2013, Proposal for a Regulation of the European parliament and for the council laying down measures concerning the European single market for electronic communications and to achieve a Connected Continent, and amending Directives 2002/20/EC, 2002/21/EC and 2002/22/EC and Regulations (EC) No 1211/2009 and (EU) No 531/2012, were introduced [22]. In 2015, the European Commission launched the Digital Single Market (DSM) strategy. According to this strategy, DSM is a comprehensive market in which people and businesses can trade, innovate and cooperate legally, safely and at an affordable price. This sector covers areas such as digital marketing, e-commerce and telecommunications. The Single Digital Market seeks to maintain the rules of fair competition, consumer protection and the removal of geographic and copyright issues [24]. In 2016, the European Commission presented also a Single Market Strategy (SMS), where the main objective was to unlock the full potential of the single market for the European Economic Community established by the states of the European Union [25].

There were also presented policy recommendations that should lead to a reduction of barriers that prevent to growth of the sharing economy in the European Union [26].

In the following part we want to identify the role of the tool that can be used to create better sharing conditions.

### **4. METHODS**

In these processes, the question is: What is more important: what is the role of the internet and traditional business doing? What is the role of their relationship to innovations? What the role of spin-off companies is in digital economy? We try to find answers to these questions. As the basis for conclusions, we provide an evaluation of the research results obtained by performing various economic analyses of indicators of digital economy, spin-off functioning, and also by the assessment of attitudes of small and medium enterprises to innovations and IT adaptation. These research activities were carried out in the framework of partial research activities of research institutes of the partner universities (University of Žilina, Institute of Management Systems in Poprad, Matej Bel University, and Banská Bystrica) between 2015-2017. We also compared our research results with similar issue, provided in SMEs in EU. To assess the current situation in the attitude of SMEs towards innovation and implementation of new IT as a support of their business activities we will evaluate the opinions of 189 SME managers and 26 representatives of IT companies (data collection by electronic survey and by structured interviews). The data analysis and hypotheses validation will be performed using the statistical methods and validation tools of the SPSS program, as well as methods of deduction and synthesis.

## 5. RESEARCH RESULTS

Next, we review the current state of the sharing economy and predict its future development. We analyze the available indicators and propose suitable recommendations.

### 5.1. REVISION OF THE SHARE INDICATORS ESTIMATION OF SHARING ECONOMY

As outlined in [7], if we want to identify the database for the analysis of the sharing economy, it is necessary to analyze the number of unregistered entrepreneurs from the small and micro enterprises sector provided. In the revision of the estimates, their share in the labor market is estimated comparing the outputs of the labor sample survey based on data from the Czech Statistical Office and the Labor Office statistics. The aim of this analyze is to review the ways in which the share of producers deliberately not registered on the labor market is estimated and to assess their verity. The evaluation and comparison of the verity of indicators of sharing economy was provided by using the statistical methods and validation tools that are part of the SPSS program.

To identify the database for the analysis of the sharing economy, it is necessary to build on the revisions of National accounts statements (32). This document describes the impact of changes in methods and changes in data sources within the so-called "major revision of annual national accounts". In the context of revisions, the search and identification of leakages is in the form of so-gray economy. Although the sharing economy is not exactly the same as the gray economy, these two sets overlap in many ways.

It is recommended to follow the estimates of:

- the impact of accommodation services on GDP in the form of dwelling services - imputed rent. In this case, it is necessary to use the stratification method of the imputed rent estimation rather than the unit cost method (UCM). there are determined the size of the imputed rent according to a) the size of the municipality, b) the type of the building, c) the size of the apartment, d) the equipment;
- producers deliberately not registering - The estimated values are obtained using the analysis of data collection obtained from the pilot study "Exhaustiveness of Czech National Accounts" - from the mutual project of Eurostat and the Czech Statistical Office. The calculation of the values of the indicators is done in two steps (using the old method). First, there are calculated the percentages obtained by the industry sector. Secondly, it is estimated the amount of unofficial unemployment on the basis of the labor market disparity (according to the average labor productivity in the sector). In 2010, the estimated value of the variance was 2.8% (employees in full-time equivalents) in CZK 78.513 million, in EURO 2.606 million [27]. The results of the new method are also obtained in two phases. First, it is provided a comparison of generic productivity with productivity that businesses achieve by using credibly leading accounting. Secondly, the estimated value is calculated according to labor market disparities.

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<sup>32</sup> This basic revision was published by the Czech Statistical Office on 30 September 2011 and preceded the main revision in 2014. The main reasons for the revisions were to ensure greater comparability of macro-aggregates in the Czech Republic with respect to the transition to NACE classification. The most important conclusion is the underestimation of the performance of the Czech economy (2-3% absolute in GDP) in the past.

The results of the second method are surprising. The deviation is 35.5% (CZK 103.689 million, in Euro 3.442 million €) for employers and 13.4% (CZK 110.846 million, in Euro - 3.679 million €) for self-employed persons. As pointed out, the new method allows for more accurate estimates of differences in monitored parameters.

## **5.2. AN ANALYSIS OF SUPPLY AND DEMAND IN A SHARING ECONOMY**

If we want to assess the situation in terms of demand and supply in the sharing economy, what services or products are preferred, it should be realized using the survey analysis of respondents' opinions that are involved in providing the related services or products. The aim of the survey should be to find out what the real state is and what the dynamics of changes in supply and demand in the sharing of the economy by sector, including an estimate of the size of individual markets is.

On the basis of the survey, target groups should be identified precisely, offering both demand and supply in sharing economic services, according to the age, level of education, personal attitudes and preferred values by them, etc. Survey should be performed anonymously between the population aged over 15.

Design of data collection for the quantitative sample survey of the sharing economy, we propose to ensure the following methodological parameters, which will ensure a sufficiently precise description of respondents:

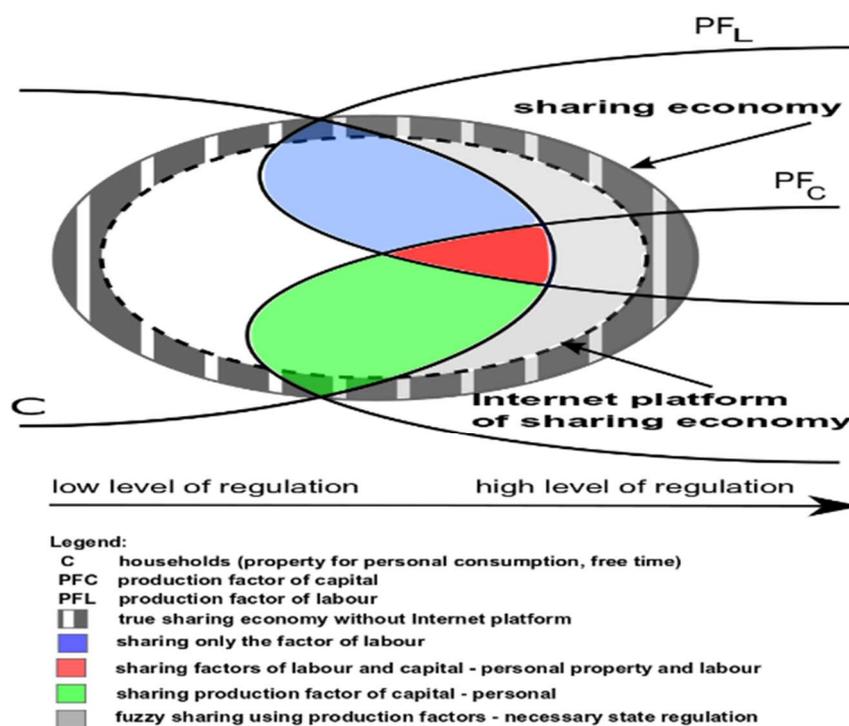
- Number of respondents: 3000 respondents.
- The research should be stratified with the same probability of selection in the four main strata according to the size of the municipality (less than 1,000, 1,000 - 9,999, 10,000 - 99,999, and 100,000 and more).
- Selection method: random selection,
- First of all, a face-to-face interview, where recording respondents' views in the paper questionnaire should be captured
- Estimated cost of the survey: 1,000,000 CZK without VAT, it means approximately 33,33 € without VAT.

In the future, we suggest to use the alternative data collection provided by Computer Assisted Telephone Interviewing or by electronic survey.

## **5.3. THE ANALYSIS OF REGULATORY INDICATORS**

Using the Conceptual Sharing Economy Model - CSEM [7], the effectiveness of sharing economy should be researched. It is the basic model that allows to point out the behavior and relationships of economic entities. It is based on the theory of economic subjects and describes the relations of these entities in the environment of sharing the economy. It should be also used to providing recommendations for regulatory measures in the context of public interest theory and enforcement of socially effective behavior (including the limitation of negative externalities). Its basic schema is the Figure 1.

Figure 1. Conceptual Sharing Economy Model - CSEM



The basis of the model is the largest concentric circle - a true sharing economy. It means that it is an economic model based on the sharing or leasing of products, as opposed to their exclusive and indivisible ownership. The basic interaction in the model is interaction between households and businesses. On the left side of the graph dominates the impact of households, in the right part the impact of the behavior of the enterprise and the business environment prevails.

In the description of the model, we can deduce two possible approaches of Internet platform operators (context model) to create support for their delivering. The first approach is to optimize shopping behavior, social efficiency. There are open platforms where information is not hidden for any reason, it is not necessary to share it with other market participants, including state institutions. There are preferred innovation processes, product innovations, as well as helping in a social order to support innovative business activities.

The second approach plays the role as a tool for controlling market activities. From the theory of public interest, there is a significant constraint due to the fact that these platforms produce negative externalities [28]. While, for example, extra charges received in the form of a local tax on accommodation in traditional hotels are received and returned to the municipal budget, which generally subsidizes local public activities and, in this way, it contributes to the increase in attractiveness, interest and quality of accommodation, in case of sharing it will not happen. The sharing of accommodation provided by the private sector cannot be taken into account as a driver of progress because it does not contribute to the attractiveness of the service in these ways. It is necessary to assess the need for regulation and choose what is more appropriate - to support traditional business or activities provided by sharing economy. From a control point of view, the most important grey area is the area to the right of the C curve. This "fuzzy sharing"

area is a grey zone, an area of social interest in regulation. It is a grey economy that is not socially effective.

#### **5.4. AN ANALYSIS OF THE ROLE OF SCIENCE PARK**

The support of spin-off companies also provides science parks. Science parks play a very important role when setting up university and non-university spin-off companies. The result of such cooperation [29] creates a basis for suggestions formulating, based on best practices (for example, prepared by experts from Taiwan who have been familiar with the situation regarding the already mentioned Bilateral Agreement, for example the University of Zilina and Broker Center of Air Transport visit), as follows:

- State support, regional and local autonomy is essential when building science parks, which should be built according to the situation in state development.
- It is important to provide infrastructure and management of high quality while building science parks.
- It is necessary to find qualified experts for effective communication, experts who will be able to discuss park's business interests, suggest examples of "best experience" either from the science park environment or abroad.
- This should also be applied to the Broker Center of Air Transport for knowledge and technology transfer with the aim of developing transport and transport infrastructure.
  - Autonomy is very important for a science park (in Taiwan, this autonomy is created by companies that are located directly in a science park).
- Ideal equipment should include: high-quality, fast internet connections, free zones, hot links available 24 hours a day, restaurant, coffee shop, shopping area, relaxation center, etc.
  - It is advised and effective to learn from the experienced ones when it comes to knowledge transfer and a spin-off company set up. Many people are still expected to "learn from the experienced ones". For service or product providers it should be a challenge in order to progress and successfully deal with the problems and obstacles we are experiencing.

#### **5.5. EVALUATION OF THE CONDITIONS OF TECHNOLOGY TRANSFER AND THEIR COMMERCIALIZATION**

Next, we also evaluate the possibilities of technology transfer and their commercialization, implemented through spin-off or start-up companies on the basis of evaluation of experiences from examples of best practices. To assess the current situation in the attitude of SMEs to implement or innovate IT as a basic support of their IS management we evaluated the opinions of 189 SMEs managers and of 29 representatives of IT companies (data collection realized by electronic survey and by structured interviews) and data analysis was provided using validation of hypotheses, where we used the statistical methods and validation tools as a part of the SPSS program).

Although many surveys are mostly oriented towards developed and innovative regions, our research activities have been oriented to spin-off companies in economically less developed regions or those with lower innovation activities. While such regions are mostly characterized by the absence of excellent research, the influence of spin-off companies is not only symbolic, but instead helps to improve the flow of knowledge within the region. Nevertheless, the number of university-related spin-offs is relatively low, but its interconnection with universities demonstrate that universities can be considered as catalyst for the business sector within the

region. Many spin-offs are oriented towards providing consulting services, which in turn could help develop specialized expert services or groups offering knowledge intensive services within the region. It also supports networks creation with other companies and expanding of personal contacts between specialists and practitioners. Newly established spin-offs could help develop a second generation of technologically advanced spin-offs in the future.

The worse situation is in the area of other small and medium-sized enterprises (SMEs), which play a significant role in the sharing economy, especially in less developed regions. According to our previous research (realized in 2015 with managers of SMEs), only a small part of SME was interested in the new technologies. We tried to find the key barriers, which prevent companies to utilize the potential of new technologies and innovations. In [30] dealt with a similar issue and they stated that managers of SMEs (representatives of 50 small and medium-sized enterprises located in Lower Silesia) declare lack of financial resources and infrastructure for the comprehensive implementation of integrated information systems to facilitate interpersonal communication in plants. They use only traditional tools, their level of skills is low and their awareness of staff production facilities in the field of information security, especially when working on the computer and using traditional media is low, too.

We analyzed respondents' answers to the question if companies have enough information about technologies and innovations. The result is that in two of the above-mentioned companies, companies see the low level of satisfaction with the rate of their awareness. Using the Wilcoxon Signed Ranks non-parametric test we considered a mutual relationship between awareness of new technologies and innovations. As we found,  $\alpha = 0.127 > 0.05$ , therefore, we want to state that they feel better informed about technologies than about innovations. Then we reviewed the frequency of seeking information about technologies and innovations. We considered the answers to the question "How often do you search for information about technologies or innovations?" We tried to find out if they often seek information daily, weekly or monthly or prefer to seek information once a year, once a year or never. By Wilcoxon Signed Ranks We tested the frequency of seeking information. We calculated, that  $\alpha = 0.827 > 0.05$ . We found out that they are mostly seeking information about innovation or technologies (app. monthly, 29% or half yearly, 20.5%). That's why we can state that if companies are interested in new technologies and innovations, they will be more interested in new information about them.

We have also examined the barriers that restrict the widespread use of IT, system integration of IS and tools supporting business process automation based on arguments of respondents - company managers and representatives of IT companies. We can state, most of SMEs (93.7%) use basic software support for business doing. This creates conditions that increase the importance of implementing electronic business models also in the small and medium sector as a basic tool for data processing, information search and for their distribution and sharing. This is important when they want to provide their services effectively in strong competition.

Before implementing software for business support, it is necessary to acquire adequate information about the company. We classify this information in the following order: finding functionality to use software support, the level of integration with other tools, identifying areas of corporate activities and the price they are willing to invest in ICT support, technical requirements, existing IT support and other requirements included - bottlenecks in business processes, knowledge of work practices, current processes and planned changes, as well as application to be integrated. If companies have this information, they also create the conditions for the transfer and dissemination of knowledge across the enterprise. In the sharing economy it is more important, as SMEs are the initiators of changes. It is due to the ability to look for

suitable solutions at low cost to the innovation and implementation of electronic ways of connectivity and communication.

## CONCLUSION

The digital economy creates new opportunities but also new challenges for sharing economy. Companies have developed on-line platforms (such as Uber and Deliveroo) that other people can use to fill their needs sharing some products or services. These products are then shared between these companies as well as providers. These companies gain an advantage over traditional companies as they benefit from providing their own equipment or service. This reduces costs for them and creates opportunities for providing some "on-demand" services. Their own interest is their technical support and online accessibility.

Evaluating the research findings allows us to define the procedures and conditions that lead to full professional support of sharing. Regarding the newest developed technologies are often not fully functional and related problems with their co-operability need to be solved in practice. Licensed technology addresses these issues and is also a guarantee of their functionality. However, it is well known that companies are not willing to pay for such licenses.

The spin-off companies are the best way to realize the complex development of a functional product that can be later evaluated on the market and offered to a wide range of business partners. The license provides the contractual relationship between the university and the spin-off company, which enables them to further develop and thus contribute to the maintenance and development of the local or regional innovation ecosystem. Managers get the opportunity to understand how to set up and develop an innovative business and what kind of relationships between the university and the spin-off company (especially in the legal and financial field) can arise in transferring knowledge from the university environment into practice. It builds and also strengthens the mutual non-financial relationships between the university and the spin-off, where the effect of applying science to business marketing, improving the quality and scope of practical education is done.

According to the OECD Recommendation [31], we can state that a sharing economy is a reality, it makes no sense to distinguish between classical and online activities, but it is necessary to focus on predicting and preparing for digitization, looking for ways to take advantages of digital economy, boosting trust across sectors in a network, complex and global ecosystem. Furthermore, it is necessary to move forward in the digital agenda, in four key policies, as to be opened towards the Internet and innovation, confidence in the digital economy, the construction of a global interconnection and, create jobs and skills.

Some areas of the sharing economy can impact that they can be positively rated from a certain point of view, from another negative one. It is given by the following aspects:

- due to offer lower transaction costs and a desire to reach out to the young generation in particular, the prices fall in comparison with payments for traditionally provided services; it can be positively rated by consumers but it evokes a deflationary impact,
- platform operators require a lower level of regulation of selected activities, especially services, which may be positively perceived by the service provider but it creates a negative impact on consumer protection, or fiscal interests.

The importance and the need to dispose with regulatory tools and regulatory measures is growing. In this way the using of the Conceptual Sharing Economy Model – CSEM advantages

plays its role. Managers get a tool for evaluating their own business, where the use of IT offers sophisticated ways of decision-making. They can better decide which regulatory measures or innovations are to be preferred. The result is the ability to get up-to-date information that actually informs about the current business situation.

As a result of our research activities we recommend the managers to realize:

1. Population research aimed at the supply and demand for a sharing economy by sectors, including an estimate of the size of individual markets.
2. Analysis of trends in individual sectors of the sharing economy (e.g. Airbnb), which would provide an estimation of the size of these segments on an annual basis, which will provide an overview of on-going service offerings, including occupancy analysis.
3. Market Sensitivity Analysis, including spatial elasticity - based on data obtained from regions, enables partial analyses as a basis for assessing the impacts of the sharing economy on specific entities, including the worsening of their economic results. The statistical evaluation of the practical experience allows for better conditions for the commercialization of technology and also for identifying and making recommendations for the regulatory treatment of the sharing economy.

Sharing economy is not only an alternative distribution and user model, but also a competitive alternative to entities offering distribution and use of products, services, time, skills or competencies. It is due to the fact that some on-line applications allow feedback and flexible evaluation of the quality of the product or service provided. Based on this information, they may affect the quality of the provider or exclude poor quality products or services providers from the offer. Even this element of self-regulation could be used to support the limitation of regulatory measures.

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