

The Impact of the Sharing Economy as an Ecosystem on the Tourism Sector

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Abstract

The authors of the article investigated the sharing economy elements as an ecosystem and analyzed the advantages and disadvantages of the sharing economy in the tourism sector. Exploring the elements of the sharing economy's ecosystem can help identify the challenges of globalization and lead to exploiting the sharing economy's potential more efficiently in the tourism sector. The study of the impact of the sharing economy as an ecosystem on the tourism sector is also made relevant by the lack of research examining the advantages and disadvantages of sharing economy models. To determine the impact of the sharing economy on the tourism sector, the authors analyzed the scientific literature. An empirical study of business models based on the sharing economy in the tourism sector was carried out. Moreover, the advantages and disadvantages were identified of the sharing economy in the tourism sector. The authors' analysis has shown that, despite conflicting views on the impact and importance of the sharing economy in the tourism sector, many experts are optimistic about sharing economy-based models in this sector. Research by the authors of the article shows that sharing economy-based businesses are superior to traditional business models. The sharing economy-based models are preminent because of more affordable prices for tourists, better satisfaction of individual needs, opportunities to become part of the community, a more comprehensive range of services, better access to tourism services. A better quality of services also highlights the advantages of economy-based businesses. Although the study was conducted in the Lithuanian tourism sector, we can assume that the study data can be unified and applied to analyze similar markets in other countries.

Key Words: sharing economy, sharing economy models, ecosystem, tourism sector.

JEL Classification: L8, L83, L84.

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1. Introduction

With the processes of globalization and the integration of the world's economy, the importance of information technology in global economic relations is growing. Changes in societal values, financial capacity, and technological advances in online platforms drive the sharing economy's growth by involving interconnected online users who distribute and use unexploited resources. The United Nations World Tourism Organization (2016) and the Committee of the Regions (2017) point out that the tourism sector

needs to be given high priority due to the tourism sector's sharing practices prevalence. According to the World Travel and Tourism Council (WTTC, 2019) the economic contribution of the sharing economy to the tourism sector was 10.3% gross domestic product [GDP] worldwide. The sharing economy has become one of the largest and fastest-growing markets in the world. According to the European Commission (2017), in 2015, total revenue from cooperation platforms and service providers in the European Union amounted to €28 billion. It is stated that in 2025 transactions on sharing economy platforms could amount to €570 billion. The development of the sharing economy in the tourism sector has contributed to economic growth. However, it has also sparked protests in which traditional businesses and supporters have fought against the sharing economy's market-based models. It is noticeable that governments, communities, competitors have different attitudes and assessments of the sharing economy-based models. According to that, it is essential not only to analyse the impact of the sharing economy by highlighting its strengths and weaknesses but also to identify and characterize the sharing economy's key elements as an ecosystem.

The research problem. During the analysis of the scientific literature, it is noted that only a few studies have been designed to analyse the impact of the sharing economy in the tourism sector so far (Ferrer, 2018; Hong, 2018; Ključnikov et al., 2017; Krajčik et al., 2019), despite the popularity of the sharing economy and researches in other sectors, e.g., finance, transport, accommodation services (Bosque, 2018; Chen and Kockelman, 2016; Srovnalíková, Semionovaitė, Baranskaitė and Labanauskaitė, 2020; Ključnikov, Krajčik, Vincurova, 2018). Several authors also paid great attention to the legal perspective of the sharing economy and the challenges brought by the sharing economy itself (Onete, Plesea and Budz, 2018; Balionytė, 2017; Schwab, 2018; Schor, 2016; Mair and Reischauer, 2017; Lombard, 2015; Martucci, 2018; Lougher and Kalmanowicz, 2016). Many authors who have studied the sharing economy emphasize that the sharing economy is a complex, pervasive business model that changes consumers' perceptions of business, expectations and affects many areas of the economy. There is a lack of information on the functioning, stakeholders and impact of the sharing economy-based models. Thus, with the growing potential of sharing economy-based models in the tourism sector and the lack of scientific literature and research, there is a need to research sharing economy-based models. In this study, it is attempted to determine the positive and negative economic, socio-cultural and environmental effects of sharing economy as an ecosystem.

The research aim - to determine the impact of the sharing economy on the tourism sector.

The goals of the research:

1. to analyse the concept of sharing-economy-based business models ecosystem;
2. to determine the influence of sharing economy for the tourism sector;
3. to evaluate the sharing-economy-based business models in Lithuanian tourism sector.

Research methods:

1. systematic and comparative analysis of scientific literature;
2. expert evaluation;
3. methods of descriptive statistics.

2. Literature review. Theoretical background.

The origins of the sharing economy go back to ancient Roman times when the wealthiest allowed the public to use the wellness facilities in private villas for a set fee. The emergence of the modern sharing economy is associated with North American, Asian and Australian countries with high urbanization levels, the majority of the millennials (born between 1981 and 1996), and the extreme popularity of

smartphones. With the growing popularity of the sharing economy in the tourism sector, the concept of "sharing economy" has caused debate among scientists (Gerve and Silva, 2020; Teubner and Flath, 2019).

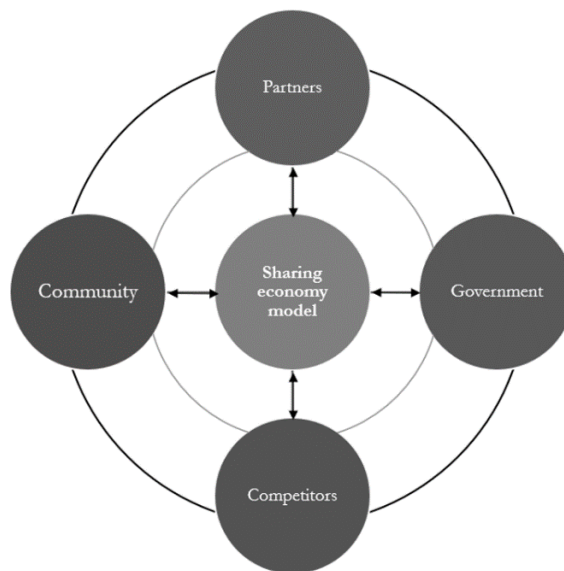
Although many authors have analysed the sharing economy, the sharing economy's definition is still at the centre of scientific discourse. However, most authors point out that the sharing economy involves human interaction. In defining the concept of a sharing economy, many scholars also indicate that transactions can be monetary and non-monetary (Bostman and Rogers, 2010; Mair and Reischauer, 2017; Frenken and Schors 2017; Uddin et al., 2021). Most authors focus on new ways of allocating resources that create value. However, there is disagreement about what type of capital (human or only physically tangible) can be included in the concept of the sharing economy's object. Some authors point out that sharing can only include physical, underused assets (Frenken and Schor, 2017; Bostman and Rogers, 2010).

Analysing the definitions of the sharing economy by different authors, we notice no consensus on which areas or platforms belong to the sharing economy. However, distinguishing the sharing economy's main features, we can say that the sharing economy in the tourism sector can be defined as sharing knowledge (including ideas, experiences, information transfer), sharing tourism services, sharing objects, and other tourism activities.

2.1. The Characteristics and Dimensions of the Sharing economy as an ecosystem

The sharing economy in the tourism sector can be analysed as an ecosystem, as it involves several interrelated interest groups that co-exist and interact in a dynamic environment (Leung, Xue & Han, 2019). Ecosystems are seen as open communities consisting of service providers, consumers, platforms, partners, public authorities, competitors and the community (Parente, Geleilate & Rong, 2018; Popesko et al., 2016). The picture below (Figure 1.) shows that the sharing economy's ecosystem is illustrated, consisting of two interrelated layers.

Figure 1. Sharing economy ecosystem



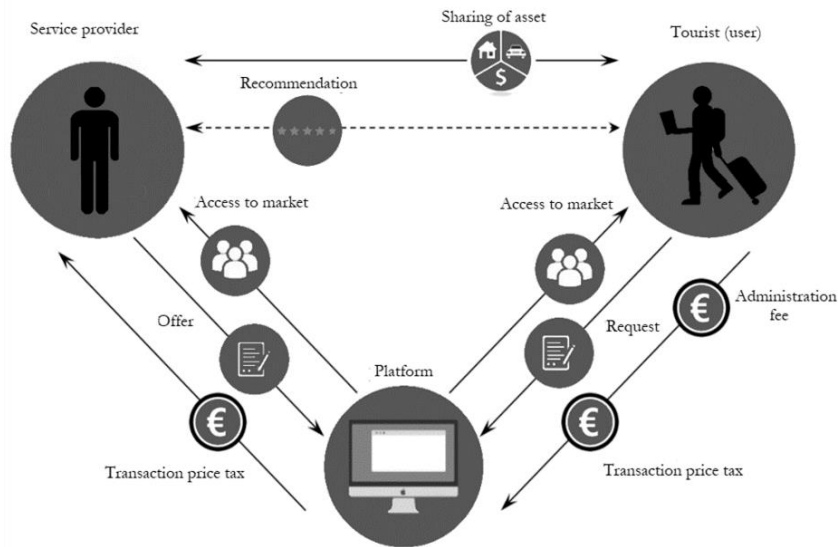
Source: Authors own conception

The first layer of the sharing economy ecosystem consists of the platforms, service providers and tourists (consumers), whose activities and interactions are the main products of the sharing economy in the tourism sector.

Its second layer consists of partners, competitors, public authorities and local communities which are connected together. The businesses which are based on the sharing economy and all stakeholders interact and shape each other. The layers of the sharing economy ecosystem in the tourism sector are analysed separately below.

The first layer of the ecosystems is illustrated in detail in Figure 2. Within the framework of the sharing economy's traditional triangulation model, the main issues related to the sharing economy and business processes are examined.

Figure 2. Key elements of the sharing economy model



Source: Authors own conception on the basis of Šiuškaitė et al., 2019

Although the bilateral relationship is often seen in traditional markets, the tourism sector's sharing economy is characterized by three-way transactions. In the sharing economy service triangle, sharing economy platforms are intermediaries connecting customers who need services (tourists) with service providers. Many of the services offered by sharing economy platforms in the tourism sector are seen as alternatives to traditional accommodation, leisure and transportation services. Consumers and services providers operating on sharing economy platforms create new tourism experiences, transforming values, motives, reasons, and traveling methods.

The platform's primary function is to mediate and develop social interactions and economic transactions between service providers and tourists. According to the presented model (Figure 2), service providers publish information about the tourism product on the platforms. The online trading platform provides access to the market and information to tourists (Bilan et al., 2019). Platforms are based on mutual trust between market participants. Therefore, often exercise control over the perception of reputation and value (Curtis & Lehner, 2019; Pjerotic, 2017). According to Ivanova (2015), the provided service's mediation and quality assurance are essential to implement tourists' expectations.

In summary, we can say that the sharing economy's business models reveal the change that occurs when digital resources and various combinations of digital platforms are used to maintain a different relationship with material resources (Bilan et al., 2019).

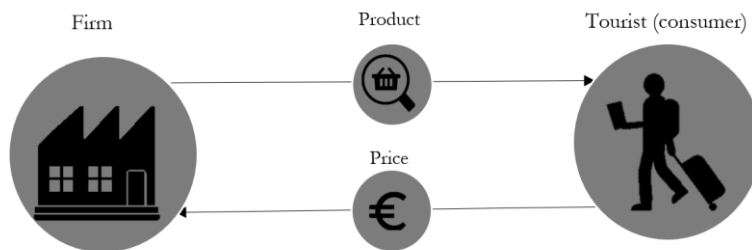
The second layer of the sharing economy ecosystem is further analysed (Figure 1).

Competitors. The main competitors of the sharing economy in the tourism sector are often companies based on the sharing economy and traditional businesses. It is observed that competition between sharing economy platforms in the tourism sector is not significant. According to research at Kansai University in Japan (World Bank Group, 2018), the more users are attracted to sharing economy

platforms, the better algorithms become and more platforms can generate revenue, invest in data management, and become more efficient business organizations. Parente et al. (2017) affirm that sharing economy platforms in the tourism sector is affected by the network effect, which increases as more users use the platforms and expand the network so that competition between incumbents and new sharing economy-based platforms is relatively low and inflexible.

However, a much more complicated situation in the tourism sector is observed between sharing economy-based and traditional businesses. A comparative analysis of the sharing economy's operation principles and traditional business models in the tourism sector is carried out (Figure 3).

Figure 3. Traditional business model



Source: Authors own conception

In contrast to the sharing economy, which focuses on virtual markets, connects service providers and tourists according to their different needs, traditional business in the tourism sector focuses on the business development and commercialization of unified products or services (Parente et al., 2017). Unlike in the sharing economy model, the economy's traditional business model is static, with no redistribution of roles (the service user cannot be either the service provider or vice versa) (Figure 3).

Companies in the sharing economy also differ from traditional companies in the tourism sector regarding management processes, value proposition, and revenue generation (Table 1).

The provided value can be assessed for sharing economy users in terms of ease to use, response speed, variety of choices (tourism objects, destinations, features of tourism services), the ability to offer a unique, niche tourism service according to customer needs.

Table 1. Differences between the sharing economy and traditional business

	Traditional business:	Sharing economy:
Service value proposition	<ul style="list-style-type: none"> • quality and reliability; • property; • additional services. 	<ul style="list-style-type: none"> • wide choice, unique products and services; • new experience; • flexibility (<i>according to need</i>); • speed; • convenience (<i>fast service, easy to use</i>).
Management process	<ul style="list-style-type: none"> • acquisition and production of products; • inventory maintenance; • client consultation. 	<ul style="list-style-type: none"> • consumers as service providers; • alternative trust mechanism (<i>feedback, rating</i>); • help for consumers; • data management.
Revenue	<ul style="list-style-type: none"> • profit margin. 	<ul style="list-style-type: none"> • commissions.

Source: Authors own conception

Sharing economy-based companies in the tourism sector manage relationships with customers through a digital platform where formal and informal rules govern the relationship between competitors, providers and tourists. Traditional companies in the tourism sector usually rely on a clear structure that defines tourism service provision standards. Traditional companies also regulate the service provider's responsibilities and obligations, ensuring that the tourism service meets required quality standards, defines responsibilities and risks related to providing tourism services. Traditional businesses in the tourism sector also provide access to additional services.

One of the main differences is the number of costs required to carry out the services. Traditional companies must acquire all the necessary inventory for certain activities, employ people, and acquire other essential equipment and tools (Ključnikov et al., 2019). The initial costs of sharing economy-based businesses operating in the tourism sector are fixed, related to the digital platform's development, and variable expenses related to its maintenance. Companies in the sharing economy do not manage the tangible assets directly related to the goods offered. However, sharing economy-based companies have relatively high investments in the maintenance and development of the information platform infrastructure. Sharing economy companies generate revenue streams by receiving commissions on each transaction executed. Transactions in the tourism sector's sharing economy are also characterized by various compensation forms for the services provided (exchanges, trade, gifts). In a traditional economy, the main form of compensation is cash payments to receive a good or service. Thus, depending on the costs incurred, shared-economy companies in the tourism sector can offer a lower price.

Partners. Typical partners of sharing economy companies in the tourism sector are payment system companies, credit card companies, insurance companies and companies providing rating services. Yang, Ma, and Zhang (2018) pointed out that comments and rankings in a reputation rating system significantly impact community trust and willingness to purchase the service. When choosing services, tourists conclude the reliability of the proposed tourism product by analysing the information provided by other community members. The better rating of the tourism service provider is, the more consumers tend to choose the service provider or the service. Companies in the sharing economy do not create or provide the service themselves, so the quality of the provided service and value designed for tourists directly depends on the service providers. Thus, reliable partners are only one of the key elements in developing a sharing economy in the tourism sector.

Government. The governance element in the sharing economy tourism sector's ecosystem includes government, organizations, laws and regulations.

The rapid development of the sharing economy has led many tourist destinations to take regulatory and restrictive measures. According to Frenken (2016), the evaluation of sharing platforms takes place in reverse order. Usually, before new products are placed on the market, a thorough scientific analysis, deliberations and regulatory agreements are carried out. On the contrary, sharing economy platforms have entered the tourism market without consultation and encourage governments to take impulsive action due to rapid growth. The typical response of regulators to the development of sharing economy platforms has been to create boundaries between the sharing economy and the traditional economy by setting a cap on the sharing economy's activities.

According to the Lithuanian Competition Council (2016), businesses based on the sharing economy must be regulated, but only to the extent that consumer rights are guaranteed. It is argued that the regulation of services in the sharing economy should not build on existing requirements for traditional services and should lead to the updating of current conditions for business, which should be adapted to market developments. Some authorities argue that the sharing economy activities should not be restricted by law but should be subject to market self-regulation.

The taxation of business in the sharing economy is also a significant concern for the authorities, which has not been treated unequivocally. The sharing economy business has been accused of not

collecting identical taxes as a traditional business, and the issue of personal tax treatment has also sparked much debate (Leung, Xue, and Wen, 2018).

There are also fear that sharing economy platforms in the tourism sector could grow into a monopoly, as it has happened with search and social media platforms.

In addition to online service providers and consumer society, communities that feel the direct impact of sharing economy-based models in the physical place are also important. According to Vaskelainen and Piscicelli (2018), communities are often characterized by emotional intimacy, making it difficult for businesses such as the sharing economy to penetrate and develop in the market. It is illustrated by trade union protests in countries such as Greece, which have led to increased business development restrictions based on the sharing economy.

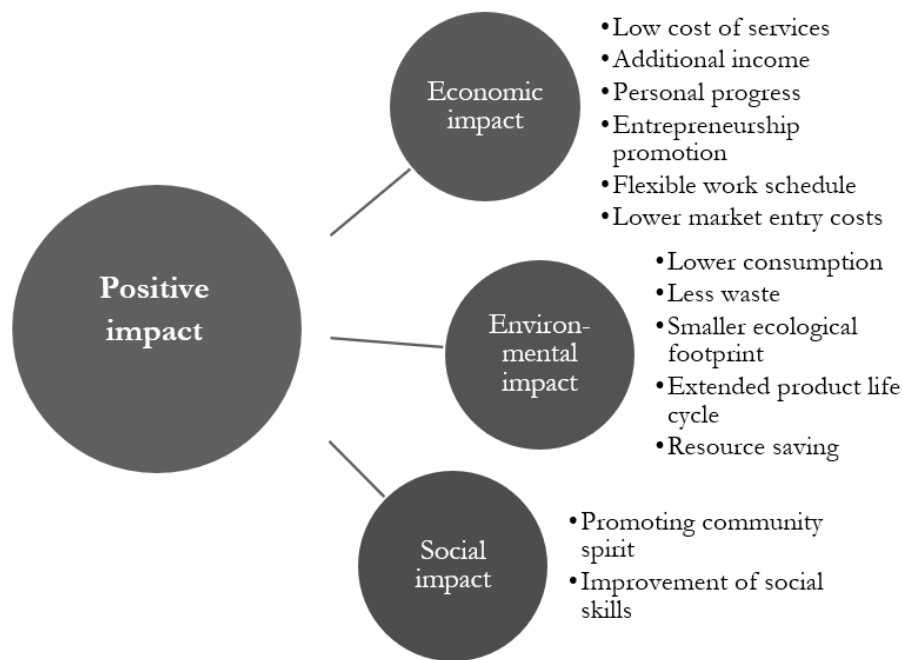
2.2. The dualistic impact of sharing economy models in the tourism sector

The growth of the sharing economy has transformed service delivery models that have a dual impact on existing businesses, regulators and the workforce as a whole.

2.2.1. Positive effects on sharing economy models in the tourism sector

The positive effects on the sharing economy in the tourism sector are revealed through the economic, environmental and social impacts (Figure 4).

Figure 4. Positive effects of the application of sharing economy models in the tourism sector



Source: Authors own conception

Economic impact. Digital platforms make it easier and cheaper for people to offer accommodation and other services in the global market. The growing interest in non-tourist destinations has also allowed the local community members to earn additional income by fulfilling the tourists' demand for short-term accommodation and other needs. Yang et al. (2018), Šiuškaitė et al. (2019) points out that consumers in the sharing economy also get economic benefits such as a wider choice of goods and services, personal progress, the promotion of entrepreneurship, flexible and individually personalized

work schedules. Digital platforms have made it possible to expand small personal transactions to mass exchanges between strangers, reducing the cost of entry and transactions for individual service providers. Sharing economy-based platforms allow tourists to easily compare prices from different providers, get more information about the products or services, view other users' opinions, and communicate directly with the product or service provider.

The advantages of developing the sharing economy in the **environment** are lower consumption and waste, saving of resources and lower ecological footprint (Dkhili, 2018). In recent years, cultural and economic changes have led tourists to be more open to the idea of sharing resources and using goods temporarily rather than purchasing or storing them. There is also seen a growing concern about the needs of future generations (Ibragimov et al., 2019). Yang et al. (2018) investigated that the sharing economy's environmental benefits are focused on resource sharing and extended product life cycle. A study by the University of New York found that developing a sharing economy by attracting visitors to less known locations helps reduce the flow of tourists and visitors to high-intensity tourist destinations (The World Bank Group, 2018). According to Frenken and Schor (2017), sharing in the tourism sector is a positive phenomenon as it reduces the construction of new facilities (in the case of hotels or common areas).

The social benefits of a sharing economy are promoting community spirit, enhancing social and communication skills, and the opportunity to increase social inclusion and mobility. The popularity of sharing economy businesses in the tourism sector allowed tourists to visit and get to know remote, non-tourist communities with visitor-friendly infrastructure (restaurants, entertainment centres, hotels) to build a personal relationship. It is noticeable that by organizing individual experiences or providing other services tailored to tourists, the experiences become individual. Unlike official guided tours following a pre-planned route, small tours organized by locals allow the locals to interact with the locals regularly or even change the excursion' route by turning onto a narrow street that interests the travellers or extending the tour to the dinner table.

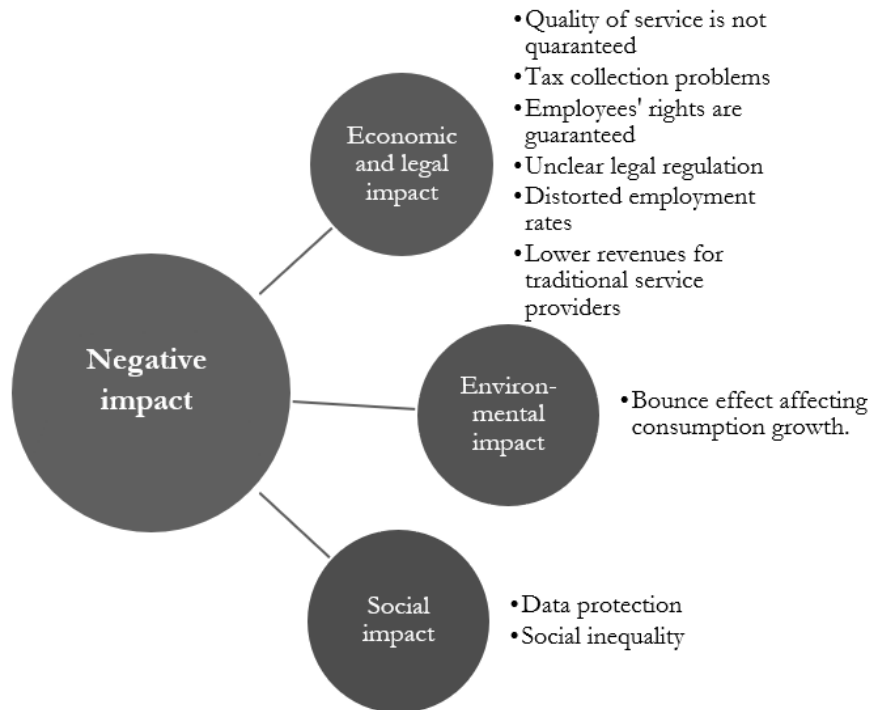
2.2.2. Negative effects of sharing economy – based models in the tourism sector

Most authors who have studied the sharing economy pay close attention to the sharing economy's efficiency and benefits. However, some authors emphasize that the development of business models in the sharing economy has revealed consequences of concern to the tourism sector, negatively impacting it (Figure 5).

Negative legal effects. The negative impact has accrued due to workers' rights because of unclear employee responsibilities, transparency and low wages. Digital technologies and the global communications infrastructure have changed the traditional perception of work and pay. Although the new type of work provides an opportunity to work with a more flexible work schedule and may impact the new wave of innovation in the labour market (Domi et al., 2019) uncertainty is observed due to insufficient protection (Schwab, 2018). It is noted that those working in sharing economy-based platforms are not considered as employees of the company and therefore are not guaranteed minimum wage requirements. Yang et al. (2018) points out that while those working through sharing economy platforms in the tourism sector are free to choose their workload and schedule, service providers must also bear the risk of business failure, injury and other disasters. Although the platforms collect commissions, there are no guarantees given to employees. According to Yang (2018), labour relations based on a sharing economy can be considered an exploitation of workers.

It is observed that the late application of laws and regulations has the effect of distorting the level playing field and not ensuring adequate protection for sharing service providers and tourists (Yang et al., 2018). Frenken and Schor (2017) note that improper regulation of the sharing economy can lead to the disappearance of traditional and sharing economy-based markets, leading to the spread of unfair competition.

Figure 5. Negative effects of sharing economy models in the tourism sector



Source: Authors own conception

Lombard (2015), who analysed the sharing economy's problems, notes that the online purchase of services or products through platforms based on the sharing economy does not guarantee quality. There is also a chance that the customer will be deceived, and the product's quality of service will be lower than indicated. With the growing importance of information technology and new models, it is also noticeable that, although detailed rules placed in Europe for collecting, processing, and transmitting personal data, large internet operators receive more information than consumers agree to provide (Vasilieva et al., 2017). Thus, user profiling through big data analysis and inferences paves the way for new, personalized services that can benefit consumers and raise consumer privacy and personal data protection issues.

Negative economic effects. According to Vall and Schor (2020), as the number of service providers operating through sharing economy-based platforms in the tourism sector grows, even during periods of low unemployment, the development of a sharing economy may weaken the standard employment rate, deteriorating overall employment quality. According to Schwab (2018), labour relations based on the sharing economy can also be associated with tax collection problems. It is emphasized that it is more convenient and more attractive for temporary workers to work in the black market. Although payment systems today ensure the transparency of transactions, new decentralized payment systems on the market reduce the purpose for public authorities and private parties to trace the origin of payment transactions. According to Frenken and Schor (2017), sharing economies indirectly affect declining performance indicators in traditional markets. Research has shown (Zervas, 2016, cit. From Frenken and Schor, 2017) that lower-class hotels, which do not meet business customers' needs, suffer the most from the sharing economy's dent. There may also be adverse effects on housing supply and price.

Negative environmental effects. As the choice of services increases and grows, consumption growth is possible, described as a rebound effect. Vendors sell, rent, or lend to consumers services and goods that are generally lower in price than in the traditional market, so offering a more affordable price to tourists can lead to an undesirable change in consumption, such as additional tourism, longer trip time (Tussyadiah and Pesonen, 2015). From 2013 by 2017, with a 16-fold increase in the number of homes rented through sharing economy platforms in Paris, Paris lost more than 10 percent of the permanent population. As a consequence, school classes decreased, the number of cafes and restaurants increased.

Consoy (2018) also notes the negative social impact of the sharing economy. The reputation of customer-generated ratings caused algorithmic discrimination based on gender, ethnicity and race. A study by Chakraborty, Hannak, Biega, and Gummedi (2017) showed that women and non-white workers receive less positive feedback, lower ratings, lower algorithmic priority causing whose service providers declining earnings and employability. An Airbnb analysis in the United States found out that black men earn about 12 percent less for the same house type in the same location than other landlords (Frenken and Schor, 2017). Discrimination is also observed in other platforms in the tourism economy of the sharing economy.

Frenken and Schor (2017) point out that sharing economy platforms can undermine social cohesion. Although it has been assumed in the past that family members and friends were generally able to use the unused property or goods for free, the opportunity provided to make money through sharing economic platforms may lead to a reduction in altruistic sharing.

3. Methods

Research instrument. The instrument chosen for the research is an expert survey. The questionnaire consists of two parts, with a total of 9 questions. The first part of the questionnaire aims to determine the respondents' demographic characteristics - gender, education, the area of the tourism sector represented, and work experience. The second part of the expert survey presents questions aimed at identifying the sharing economy-based businesses that have the most significant impact on the tourism sector, assesses the impact of the sharing economy on traditional businesses, and develops the sharing economy and competitive advantage. The prepared expert survey questionnaire is presented in Annex 1.

Investigation progress. Depending on the research aim, experts from the tourism sector working in various fields of the tourism industry (accommodation, organization of tourism services, etc.) were chosen.

According to Augustinaitis (2009), during the research, to ensure accuracy and reliability, it is recommended to include at least five independent experts, and the minimum recommended size of the expert group is three experts. According to many researchers, the optimal group size of respondents is from eight to ten experts. Eight respondents participated in the expert study, so this number corresponds to the expert group's optimal size and is suitable for further data analysis.

To ensure the reliability and suitability of the obtained data for further analysis, the following requirements were set for the respondents: at least three years of work experience in the tourism sector, education - higher. The concordance coefficient was calculated to assess the compatibility of the group of experts according to the methodology presented by Zavadskas and Turskis (2011).

The survey took place on November 11-23, 2020. The prepared questionnaire was sent by e-mail. To ensure the confidentiality of personal data, surveys are conducted anonymously.

To check the factors, risks and challenges determining the development of the sharing economy in the tourism sector discussed in the scientific literature, it is vital to analyze sharing economy-based business models and examine how experts evaluate sharing economy-based businesses. Hypotheses raised to assess the results of the peer review:

- H_1 – Business models based on the sharing economy in the tourism sector are superior to traditional business models;
- H_2 – The sharing economy in the tourism sector is insufficiently regulated.
- H_3 – Traditional business in the tourism sector is affected by the development of sharing economy-based models.
- H_4 – The most important drivers of a sharing economy are economical.

Methodology for calculating the consistency of expert opinions. After the expert group m has evaluated the analyzed indicators, the evaluations are first written in points according to the table below (Table 2).

Table 2. The expert's group's assessment

Expert's (respondent's) code	Criterion (quality indicator) marker $i=1,2,\dots,n$				
	X_1	X_2	X_3	...	X_n
E_1	B_{11}	B_{12}	B_{13}	...	B_{1n}
E_2	B_{21}	B_{22}	B_{23}	...	B_{2n}
...
E_m	B_{m1}	B_{m2}	B_{m3}	...	B_{mn}

Source: Zavadskas & Turskis, 2011

Next, all B_{ij} scores are converted to ranks R_{ij} , when the most important indicator is given a rank equal to one, the last most important indicator is ranked n , when n is the number of benchmarks. Scores B_{ij} are replaced by ranks R_{ij} using the formula:

$$R_{ij} = (n + 1) - B_{ij} \tag{1}$$

where B_{ij} is the importance rating (score) assigned to the i -th criterion of the j -th expert, m - number of experts (respondents), n - number of evaluated criteria (elements).

Next, the formula below is used to calculate each criterion ($i = 1, 2, \dots, n$) the sum of all the ranks assigned by the experts R_i :

$$R_i = \sum_{j=1}^m (6 - B_{ij}) = m * 6 - \sum_{j=1}^m B_{ij} \tag{2}$$

where B_{ij} is the importance estimate (score) for the i -th criterion of the j -th expert, m - the number of experts (respondents). The average rank \bar{R}_i of each criterion is also as:

$$\bar{R}_i = \sum_{j=1}^m \frac{R_{ij}}{m} \tag{3}$$

where R_{ij} is given to criterion i by the expert j , m is the number of experts. Next, the difference between the sum of R_{ij} and the constant is calculated for each element under consideration. The constant difference is calculated:

$$\sum_{j=1}^m R_{ij} - \frac{m(n+1)}{2} \tag{4}$$

where R_{ij} - is the rank assigned to the expert i by the expert j , m – number of experts, n – number of criteria. It is also necessary to calculate the sum S of the squares of the constant difference, which can be calculated by the formula:

$$S = \sum_{i=1}^n \left[\sum_{j=1}^m R_{ij} - \frac{1}{2}m(n+1) \right]^2 \quad (5)$$

where the value of S reflects the highest possible value when the opinions of the experts are similar and fully harmonized. When all values are found, the concordance coefficient is calculated according to the formula:

$$W = \frac{12S}{m^2(n^3-n) - m \sum_{j=1}^m T_j} \quad (6)$$

where, W – concordance coefficient, S – the sum of the middle rank squares, m – the number of experts, n – the number of criteria presented, T_j – the index of the associated ranks.

When the number of benchmarks (elements) is small ($3 < n < 7$), and the critical value of the distribution χ_{kr}^2 is bigger, the lowest concordance coefficient W_{min} , is calculated in which it can be said that the opinions of the experts are in agreement.

$$W_{min} = \frac{\chi_{v,a}^2}{m(n-1)} \quad (7)$$

where $\chi_{v,a}^2$ – Pearson's criterion, with the chosen degree of reliability, m – number of experts, n – number of criteria. The significance of the concordance coefficient, determined according to the χ^2 Pearson criterion, is further evaluated. If the calculated value is greater than χ_{kr}^2 value, it can be said that the expert assessments are consistent. χ^2 value is calculated as follows:

$$\chi^2 = W * m * (n - 1) = \frac{12 * S}{m * n * (n+1) - 1 / (n - 1) * \sum T_j} \quad (8)$$

where, W – concordance coefficient, S – sum of middle rank squares, m – number of experts, n – number of presented criteria, T_j – indicator of linked ranks. The significance of the analyzed criteria (elements) is assessed by calculating the significance indicator Q_i , which is determined:

$$q_n = \frac{R_n}{\sum_{i=n}^n \bar{R}_i} \quad (9)$$

$$Q_n = \frac{1-q_n}{n-1} \quad (10)$$

where n – number of criteria, \bar{R}_i – the average rank of criterion i .

The significance indicator Q_i shows the hierarchical order of importance of the analyzed indicators, and shows how many times one indicator is more important than another.

4. Results and Discussion

The expert evaluation's first questions reveal the available experience of experts in the field of tourism, the education acquired, the size of the company in which they work. According to the survey, we can say that most experts work in very small (37.5%), small (25%), and medium-sized enterprises

(37.5%). The majority of experts work in the field of accommodation (75%) and have higher education (professional bachelor's or bachelor's degree - 62.5%; master's degree or equivalent - 37.5%).

In the second part of the expert assessment, the questions reveal the advantages and disadvantages of the sharing economy in the tourism sector from experts' perspectives.

Experts were first asked to assess the impact of sharing economy-based models on traditional businesses in the tourism sector. The calculated average ranks of the elements (Table 3) show that the area of information sharing economy in the tourism sector is more significant than the area of accommodation, transport and entertainment organization (information > accommodation > transport > entertainment).

Table 3. Shared economy-based models influence on traditional businesses in the tourism sector by ranks

Expert's code (respondent's)	Criterion (indicator) marker			
	Accommodation	Transport	Entertainment	Information
Sum of ranks $\sum_{j=1}^m B_{ij} = B_i$	12	30	32	11
Average rank $\bar{R}_i = \sum_{j=1}^m \frac{R_{ij}}{m}$	1,5	3.8	4	1.38
Difference $\sum_{j=1}^m R_{ij} - \frac{m(n+1)}{2}$	-8	10	12	-9
$\left[\sum_{j=1}^m R_{ij} - \frac{1}{2}m(n+1) \right]^2$	64	100	144	81
Q_i	0,27	0,17	0,167	0,276
Hierarchy	2	3	4	1
Compatibility	when $\alpha = 0,05$, then $x^2 = 10,4 > x_{kr}^2 = 7,81473$, opinions are compatible			

Source: own calculations

After calculations, we can state that the elements identified by the experts that have the most significant impact on the tourism sector (accommodation and information exchange) differ slightly and can be considered as equivalent. We note that the other elements (transport and entertainment) also differ slightly from each other.

The advantages of sharing economy-based businesses and traditional businesses in the tourism sector from experts' perspectives are further assessed.

After calculations (Table 4), we can say that the opinions of the experts are consistent. Analyzing the experts' assessments, the experts point out that the sharing economy in the tourism sector is superior to traditional business due to the consumer's ability to make new contacts and relationships with other community members (4.3 points) and the fast ordering process (4 points). It is noted that businesses based on the sharing economy are also considered to be superior in terms of the more attractive price offered to the consumer (3.74 points), the lower environmental damage (3.74 points), and the ratio of

quality perceived by the consumer (3.5 points). So the hypothesis H1 is accepted – business models based on the sharing economy are superior to traditional business models.

Table 4. Comparison of sharing economy and traditional business in the tourism sector, from the point of view of experts

Expert's (respondent's) code	Criterion (indicator) marker							
	Speed	Price	Individuality	Communality	Quality	Reliability	Stock	Accessibility
Sum of Estimates $\sum_{j=1}^m B_{ij} = B_i$	32	30	30	35	28	28	30	33
Average estimate $\bar{B}_i = \sum_{j=1}^m \frac{B_{ij}}{m}$	4	3,74	3,75	4,3	3,5	3,5	3,75	4,13
Hierarchy	3	4-5	3-4	3	6	6	4-5	1
Compatibility	when $\alpha = 0,05$, then $\chi^2 = 19,37 > \chi_{kr}^2 = 14,0671$, opinions are compatible							

Source: own calculations

Another question is to identify how businesses based on the sharing economy are assessed from a legal-economic point of view. The experts were asked to rate the statements on a 5-point scale, with 1 point indicating total disagreement with the statement and 5 points indicating complete agreement. The economic-legal assessment of the sharing economy of the interviewed expert group is presented in Table 5.

Table 5. Evaluation of sharing economy-based models and traditional business regulation

Expert's (respondent's) code	Criterion (indicator) marker			
	Equally	Insufficiently regulated	Threat	Opportunity to cooperate
Sum of Estimates $\sum_{j=1}^m B_{ij} = B_i$	32	28	21	31
Average estimate $\bar{B}_i = \sum_{j=1}^m \frac{B_{ij}}{m}$	4	3,5	2,63	3,89
Sum of ranks $\sum_{j=1}^m B_{ij} = B_i$	16	20	27	17
Average rank $\bar{R}_i = \sum_{j=1}^m \frac{R_{ij}}{m}$	2	2,5	3,38	2,16
Difference	-4	0	7	-3

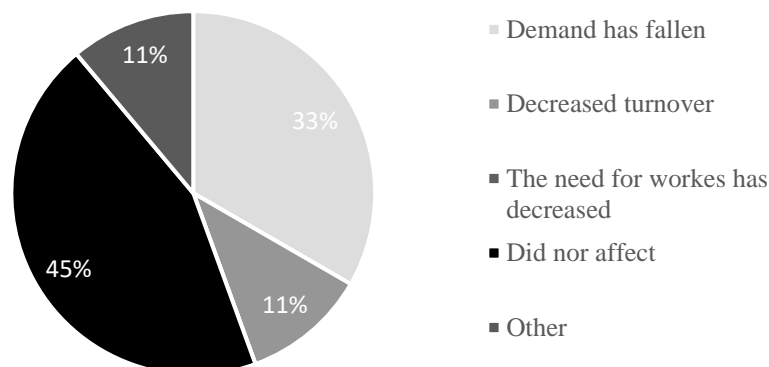
$\sum_{j=1}^m R_{ij} - \frac{m(n+1)}{2}$				
Square of difference $\left[\sum_{j=1}^m R_{ij} - \frac{1}{2}m(n+1) \right]^2$	16	0	49	9
Q	0,25	0,23	0,19	0,24
Hierarchy	1	3	4	2
Compatibility	when $\alpha = 0,05$, then $x^2 = 7,77 < x_{kr}^2 = 7,81473$, opinions are not compatible			

Source: own calculations

After checking the consistency of the opinions with the coefficients of reliability and concordance, we can say that the experts' opinions are inconsistent. Using the ranking method, we can say that many experts point out that the sharing economy and traditional business must be regulated equally, so H_2 is refused, - most experts do not believe that businesses based on the sharing economy are under-regulated.

Another question was asked to determine the impact of the sharing economy on traditional businesses in the tourism sector. Below is a diagram (Figure 6) showing how experts assess the sharing economy's impact on traditional business models in the tourism sector according to the criteria presented.

Figure 6. Assessing the impact of the sharing economy on traditional businesses in the tourism sector



Source: Authors own conception

Some experts point out that the sharing economy's development has contributed to the reduced demand for traditional services companies in the tourism sector - 33 percent (N = 3); reduced demand for staff; turnover - 11 percent (N = 1); forming a lower demand for workers - 11 percent (N = 1). Although most experts point out that traditional businesses are affected by sharing economy-based businesses, some experts point out that the sharing economy has not affected the traditional tourism sector (N = 4; 45 percent). In summary, experts disagree on the sharing economy's impact on traditional businesses in the tourism sector. Expert judgment is provided regardless of the sector represented by the respondents. Thus, H_3 can not be considered reasonable – traditional business in the tourism sector is not affected by the development of sharing economy – based models.

The factors promoting the development of the sharing economy in the tourism sector are analyzed below from experts' point of view. The assessment of the issue analyzed by the expert group is presented in the table below (Table 6).

Table 6. Factors driving the development of the sharing economy

Expert's (respondent's) code	Criterion (indicator) marker					
	Improving the quality of life	Growing aggregated demand	Climate change	Urbanization	Tehcnological	Recession
Sum of Estimates $\sum_{j=1}^m B_{ij} = B_i$	32	31	37	37	36	37
Sum of Ranks $\sum_{j=1}^m B_{ij} = B_i$	16	17	11	11	12	11
Average rank $\bar{R}_i = \sum_{j=1}^m \frac{R_{ij}}{m}$	2	2,13	1,38	1,38	1,5	1,38
Difference $\frac{\sum_{j=1}^m R_{ij} - \frac{1}{2} m(n+1)}{2}$	1	-11	-17	-17	-16	-17
Square of difference $\left[\sum_{j=1}^m R_{ij} - \frac{1}{2} m(n+1) \right]^2$	1	121	289	289	256	289
Q	0,15	0,15	0,17	0,17	0,16	0,17
Hierarchy	1-2	1-2	4-5-6	4-5-6	3	4-5-6
Compatibility	when $\alpha = 0,05$, then $x^2 = 12,59 > x_{kr}^2 = 11,0705$, opinions are compatible					

Source: Own calculations

After analyzing the data, we can say that the opinions of the experts are consistent. Experts name the most important drivers of the sharing economy - economic (improving quality of life $Q = 0.15$ and growing aggregate demand $Q = 0.15$)- hypothesis H_4 is accepted. Experts also point out that the sharing economy's development is strongly influenced by technological factors $Q = 0.16$ (mobile apps, social networks, the spread of the internet and mobile devices).

After analyzing the development of sharing economy-based models in Lithuania's tourism sector and the reasons that encourage consumers to use sharing economy-based platforms, we can say that the term "sharing economy", especially in the context of tourism, will remain at the center of academic discourse. The sharing economy in the tourism sector is an excellent way for travelers to interact with locals and gain a real, authentic experience. However, the sharing economy in the tourism sector, on the other hand, is an under-regulated business model characterized by tax evasion, labor rights violations and a lack of consumer protection laws.

Another area of discussion is the importance of traditional business in the tourism sector. Given the study results, the question arises as to whether the traditional business model will remain as important

in the tourism sector as the level of urbanization increases and conditions for travelers of all ages to learn to use mobile apps and other smart platforms. As the number of potential customers in traditional businesses decreases, so do the prices of traditional services (due to the maintenance of the developed tourism infrastructure, staff, and other necessary costs), which are identified as a critical factor in choosing a tourism service provider.

Although this study's sample size is sufficient for the tourism sector, qualitative data on the development of the sharing economy in the tourism sector alone do not provide sufficient evidence. In the future, it will be useful to supplement the study with quantitative data.

Conclusion

The sharing economy has become an essential part of the global economy. Based on the sharing economy principles, the tourism sector includes accommodation, transport, entertainment and the search for tourist information.

The development of sharing economy-based businesses in the tourism sector creates new tourism experiences and transforms values, motives, reasons, and traveling ways. Business based on the sharing economy principles, operating in the tourism sector, makes a significant contribution to economic growth, social well-being and solving ecological problems. Although sharing economy-based models has many positive consequences for the tourism sector (e.g., lower prices, promotion of community spirit), shortcomings have also been identified. The authors of the study found that businesses based on the sharing economy contribute to some social problems. Problems of tax collection, rebound effect, disruption of the local community, security concerns, and unclearly regulated duties and responsibilities were also examined. The negative impact of the sharing economy poses problems for the successful development of the tourism sector's sharing economy. However, despite the negative impact of sharing economy-based business models, the studied business model is considered the most advantageous, highest value-added business model in the tourism sector. The main areas of the tourism sector where the sharing economy is expanding are accommodation, transportation and information sharing. Once the incentives for the development of the sharing economy in the tourism sector have been identified and assessed, we can say that the popularity of sharing economy-based businesses in the tourism sector will continue to grow. Consumers and business partners have been found to have the most significant positive impact on the tourism sector's sharing economy. It has been analyzed that with the rapid and widespread entry of the sharing economy into the tourism sector, traditional businesses and public authorities tend to hamper the development of sharing economy-based business models. The example of developing a sharing economy proves that all stakeholders must be prepared for change, take into account trends, change needs, and look for opportunities to meet consumer needs more quickly and accept changes in the market.

Although the study was conducted in the Lithuanian tourism sector, we can assume that the study data can be unified and applied to analyze similar markets in other countries.

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Appendix

Annex 1. Expert evaluation of applied sharing economy based models, expert survey questionnaire

1. General information about the expert

1.1. Your work experience in the tourism sector:

1	Up to 3 years	<input type="checkbox"/>
2	3 - 5 years	<input type="checkbox"/>
3	5 - 10 years	<input type="checkbox"/>
4	10 and more years	<input type="checkbox"/>

1.2. Size of your company (organization):

1	Micro enterprise (1 - 9 people)	<input type="checkbox"/>
2	Small (10 - 49 people)	<input type="checkbox"/>
3	Average (50 – 249 people)	<input type="checkbox"/>
4	Large (> 250 people)	<input type="checkbox"/>

1.3. You are working:

1	In the accommodation area	<input type="checkbox"/>
2	In the field of travel organization	<input type="checkbox"/>
3.	Vehicle rental	<input type="checkbox"/>

4	Entertainment organization	<input type="checkbox"/>
5	Other (please specify)	<input type="checkbox"/>

1.4. Your education:

1	Major/ Incomplete secondary	<input type="checkbox"/>
2	Secondary/ Special secondary	<input type="checkbox"/>
3	Professional	<input type="checkbox"/>
4	Incomplete higher	<input type="checkbox"/>
5	Higher (professional bachelor / bachelor's qualification degree)	<input type="checkbox"/>
6	Higher (master's degree or equivalent)	<input type="checkbox"/>
7	Higher (doctoral degree)	<input type="checkbox"/>
8	Other (please specify)	<input type="checkbox"/>

2. Experts' evaluation

2.1. From 1 to 5, assess the impact of sharing economy-based models on traditional businesses in the tourism sector, according to the following areas:

(5 - large; 4 - partially large; 3 - neither large nor small; 2 - partially small; 1 - small).

1	Accommodation platforms (eg. "Airbnb")	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
2	Transport platforms (eg. "CityBee")	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
3	Entertainment at the destination booking platform (eg. "Triple")	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
4	Informations sharing platforms (eg. "Tripadvisor")	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

2.2. From one to five, evaluate the following aspects, evaluating the advantage between traditional business and sharing economy-based businesses in the tourism sector:

(5 - sharing economy-based businesses are the best; 4 - more sharing economy-based businesses; 3 - equal; 2 - better traditional business; 1 - best traditional business).

1	Speed of service provision	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
2	Lower cost of services	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
3	Meeting individual needs	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
4	Promoting community	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
5	Better wuality of service	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
6	Reliability	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
7	Wider choce of goods/ services	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
8	Availability of services	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

2.3. Evaluate the statements below:

(5- strongly agree; 4- partially agree; 3- neither agree nor disagree; 2- partially disagree; 1- strongly disagree).

1	The sharing economy and traditional businesses in the tourism sector should be regulated in the same way	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
2	The development of a sharing economy in the tourism sector should be more tightly regulated	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
3	The development of a sharing economy in the tourism sector is a threat to traditional businesses	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
4	Traditional businesses should work with sharing economy-based businesses in the tourism sector to stay competitive	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

2.4. How do you think the sharing economy has affected traditional business models in the tourism sector?

1	Decreased demand	<input type="checkbox"/>
2	Decreased turnover	<input type="checkbox"/>
3	Decreased need for staff	<input type="checkbox"/>
4	Not affected	<input type="checkbox"/>
5	Other (please specify)	<input type="checkbox"/>

2.5. What impact does each of these factors have on the growth of the sharing economy?

(5- large; 4- not very large; 3- neither large nor small; 2- partially small; 1- small)

1	Improving the quality of life	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
2	Climate change	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
3	Growing aggregate demand for services in the tourism sector	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
4	Urbanization	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
5	Technological development	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
6	Recession	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>