INTERNATIONAL JOURNAL OF COMPUTERS COMMUNICATIONS & CONTROL
Online ISSN 1841-9844, ISSN-L 1841-9836, Volume: 17, Issue: 6, Month: December, Year: 2022
Article Number: 5004, https://doi.org/10.15837/ijccc.2022.6.5004

Digitalisation and the sharing economy. A survey-based research on Airbnb in Romania

A. Badulescu, D. Badulescu, R. Simut, E. Herte, A. Borma, I. Pandelica

Alina Badulescu
Department of Economics and Business
University of Oradea, Romania
Universitatii St., No.1, 410087, Oradea, Romania
abadulescu@uoradea.ro

Daniel Badulescu*
Department of Economics and Business
University of Oradea, Romania
Universitatii St., No.1, 410087, Oradea, Romania
*Corresponding author: dbadulescu@uoradea.ro

Ramona Simut
Department of Economics and Business
University of Oradea, Romania
Universitatii St., No.1, 410087, Oradea, Romania
simut.ramona@yahoo.com

Elena Herte
Department of Economics and Business
University of Oradea, Romania
Universitatii St., No.1, 410087, Oradea, Romania
elena_stiubea@yahoo.com

Afrodita Borma
Department of Economics and Business
University of Oradea, Romania
Universitatii St., No.1, 410087, Oradea, Romania
aborma@uoradea.ro

Ionut Pandelica
Department of International Business and Economics
Bucharest University of Economic Studies, Romania
Piata Romana 6, 010374, Bucharest, Romania
ionut.pandelica@rei.ase.ro

Abstract

The collaborative (or sharing) economy continues to shape the tourism industry, challenging both the traditional areas of supply, but especially the trust and digital skills of users, the acceptance of platforms and new inter-personal and community relationships. In the present paper a cross-sectional quantitative research was conducted with non-random convenience sampling in order to determine the impact of the collaborative Airbnb platform among Romanian tourists, how well-known it is and what elements motivate tourists to choose this platform. We also want to analyse the extent to which the benefits and innovations brought by this new phenomenon are in line with the needs and expectations of tourists and whether they are interested in this phenomenon, the extent to which tourists have chosen the Airbnb platform to stay in Romania or abroad.

Keywords: sharing economy in tourism, online platforms, Airbnb, Romania

1 Introduction

The rapid growth and diversification of the sharing economy (SE) over the past 10-15 years has generated a great deal of interest both in the real economy and from researchers or policy makers. The global volume of transactions in the sharing economy has seen impressive growth in the last decade, from around 15 billion in 2014, to almost 19 billion in 2017 and it is estimated that it will reach over 40 billion in 2022 [45]. For 2035, PriceWaterhouseCoopers (PwC) reports estimate an (almost implausible) level of earned sales revenue of 335 billion dollars, almost equal to that achieved by companies from the "traditional economy" [43]. The most well-known domains in which SE is asserted are sharing of private vehicles and sharing of private residences through accommodation websites, exemplifying here Uber and Airbnb respectively, operators with a global presence and reputation. PwC identifies five major areas of SE, namely peer-to-peer lending, online staffing, peer-to-peer accommodation, car sharing, and music and video streaming [44], even if some opinions add here coworking (employees from different organizations sharing an office space) or crowdfunding (raising money to fund a project or venture from a large number of people, usually via the Internet).

In a wide definition, the sharing economy (SE) can therefore be understood as the place or means by which temporary access of some members of a network to acquire, provide, or share goods and services is allowed, mostly via an online platform. Other researchers prefer a more concise definition of SE as "the peer-to-peer-based activity of obtaining, giving, or sharing the access to goods and services, coordinated through community-based online services" [15]. Interestingly, a large share of those who use SE services are not familiar with the term itself, although they recognize that digital skills and trust in collaborative platforms are very important to the decision to enter (as users or providers) into the sphere of this economy.

In this paper we want to identify the impact that the collaborative platform Airbnb has among Romanian tourists, how well it is known and what elements motivate tourists to choose this platform. The paper is structured as follows: after this Introduction, in the theoretical part we will review some relevant contributions in the field, regarding the motivations that determine the entry and stay of suppliers and users within this economy, the importance of certain socio-demographic (age) or relational (trust) variables. In the next chapter we will describe the Data Collection Procedure and the Hypotheses, including Respondents' profile, followed by the presentation of the main Results and Discussions. In the final part we advance several conclusions following from this study's results, policy recommendations and the main limitations of this study.

2 Literature

2.1 The reasons for participating in the sharing economy

For Böcker & Meelen (2017) [4] the reasons to participate in the different sectors of the collaborative economy are very different, but not surprising: from economic ones, motivated by sharing the use of an expensive good, to environmental ones – through the shared use of cars, or personal and social interactions – such as, for example, meal sharing. There are important differences in motivations according to sectors, participants (users or suppliers), but the differences seem less important between

socio-demographic categories. Of course, here we can identify certain correlations between motivations and socio-demographic status: young people and people with low incomes are more economically driven to use and provide common assets; those with higher incomes, higher education (including young people) are less influenced by social motivations; women, more than men, are more motivated to protect the environment [16] etc.

Hamari et al. (2015) [15] or Tussyadiah (2016) [34] support a distinction between motivations, depending on the SE sector – in the areas of accommodation or car sharing, extrinsic economic motivations dominate, while in the case of meal, tool and ride sharing, environmental and social interaction are essential. Users seem to be more economically motivated than providers (suppliers), at least for the fact that the latter add elements of altruism and community spirit to their decision, while users perceive it as satisfying some needs, depending on income's level. Belk (2014) [3] states that there is a "sharing" (based on social motivations) and a "pseudo-sharing" (motivated mainly by economic gains).

The diversity of user groups also explains the diversity of their motivations, but also the phenomenon of the rapid expansion of this economy [4]. Although SE defines itself as "more sustainable", it is interesting that many sustainable innovations have spread relatively slowly in society and economy [26, 30]. Instead, the sharing economy, mainly in the field of accommodation, transport and travel has had impressive growth over the past 10-15 years. Rather, the economic motives, as increasing the degree of use of some capacities in excess, and less the social and environmental motives, fuelled these exponential increases. Some researchers warn that this phenomenon is not at all sustainable – the increase in the frequency of travels and the density of tourists in certain destinations generates, rather, negative environmental and social effects [9, 21, 35].

According to Jack Karsten [40] the benefits of SE for consumers lie mainly in flexibility and efficiency. Thus, operators such as Uber and Airbnb promote online platforms that match customers and suppliers' expectations, support the increase in the degree of use of real estate and vehicles, make working hours more flexible and optimize choices, in other words offer to consumers the flexibility to access goods and services just as long as they are needed, and to users - efficiency and cost reduction. There is, of course, quite a long list of regulatory concerns and issues; avoiding them brings substantial savings to SE operators, while operators from the "traditional" economy are forced to comply with them, involving additional cost. The lack of transparency in the calculation of tariffs, the suspicion of subjectivity or discrimination in the algorithms that rule the operation of these platforms, the trust based on the processing of reviews rather than the certification of quality standards, the uncertainty regarding how companies use the stored data, are real signals, which they must not be ignored in the functioning and future of this economy. As a conclusion of the above, there is a variety of motivations for participating in SE, which explains the rapid growth of sharing practices, from economic to social, environmental or inter-personal, a so-called perception that "there is something, somewhere, for everyone" that fuels this adoption and beyond the already known motivations.

2.2 Trust - prerequisite and result of SE

Trust, especially when we apply it to SE, is a complex and difficult category to define, it can refer to individuals, communities or society in general, sharing platforms or the Internet. It applies to users or providers, and is dependent (but also a result) of the wide adoption of expert systems [14]. Belk (2014) or Botsman & Rogers (2010) consider trust to be an essential prerequisite for the flourishing of the shared economy, the shared economy being in fact "trust between strangers" [3, 5]. However, with all this stunning definition, it is yet unclear what triggers and maintains this trust, what, how, and whether participation in the SE produces trust.

For some researchers, deep ties between producers engender interpersonal trust, ensuring the functioning of networks, for others, the creation of long-lasting ties between guests and hosts generates trust, and finally, some state that participation in the network traces a positive outcome on trust, both at individual, as well as at the communities' level [2, 28].

Also, the literature suggests that trust could be a direct by-product of "widespread adoption of distributed rating systems" [2], that is, trust in the SE system is not so much a trust in other unknown persons but a trust in the functioning of the rating system, the platform and the interactions within

it [5], a product of the good functioning of social and technical systems, often mediated by user satisfaction [25]. According to Andreotti (2017) [2], trusting platforms and their algorithms in essence means a deep trust in the reliability of collective judgment, despite the huge privacy/confidentiality challenges. In many cases, what participants are looking for, and what platforms provide, is not about trusting a generic partner, but a strong governance system that ensures smooth commercial and financial transactions [3]. However, strong governance and the general acceptance of surveillance and analysis rules (like "Big Brother") has multiple, positive and negative effects on building trust, i.e. "algorithmic reputational systems may not be very effective when it comes to generating interpersonal trust"" [2].

Thus, Ert et al. (2016) find that Airbnb's algorithm promotes positive reviews on a disproportionate scale and fails to build effective interpersonal trust between hosts and guests [11], and Gandini et al. (2016) find that while algorithms are quite good at producing individual reputation, they perform poorly at building professional trust [13]. Parigi & State (2014) exemplify the success of Couchsurfing which significantly affected the platform's interpersonal trust-building potential [28].

Analysing "trust in sharing economy business models from the perspective of customers" in Poland, Wagner et al. (2019) consider that "the development of business models based on the sharing economy has become possible thanks to the development of ICT tools and easy access to the Internet", to the effective use of technology and trust in new applications, but the expansion and consolidation of SE in the whole economy and society is also dependent on trust in the human factor existing in the model. Thus, they find an average level of trust of the younger generations (Z Generation) in the SE, given by the combination of a high trust in technology, but rather low in people. Women are relatively less confident in the business model of the SE and severer in their assessment of trust in people, while men are more confident in technology. Trust in the technology used by sharing platforms declines slightly with age, with the 46+ age group having an average trust in technology and IT systems. In contrast, trust in the human factor of the sharing economy model has low levels across all age, gender or education groups of the sample [36]. Addressing how to ensure equal rights and fairer access to SE services (as providers or users) Hsiao et al. (2018) find that trust, computer self-efficacy, and perceived ease of use are all positively correlated with service use of SE and directly influences the willingness to continue using (paying for) these services. These results partially contradict previous research suggesting that users of these platforms are typically educated individuals with above-average incomes and trusting attitudes toward strangers and the platforms' technical performance [18]. Nonetheless, the wide acceptance and use of sharing platforms is influenced by the quantity and relevance of included information, i.e. that "suggestions provided are aimed at supporting their users in various decision-making processes, such as what items to buy, what music to listen, or what news to read" [20, p. 231]. In other words, recommendations become "a hot topic in the e-commerce system" [39, p. 520], including the tourism and trabel industries, often augmented by multimedia technologies and other innovative applications designed to support the decision to buy [6].

2.3 Age and willingness to join SE

According to Böcker & Meelen, the motivations for entering the SE are probably not unchanging at the level of the general population [4], but they differ according to the status of owners or users of the assets, composition or socio-demographic particularities [16].

Thus, the age factor is assumed to have a certain influence on motivation, i.e. elderly people have more frequent contacts with neighbours and acquaintances made during their life, and the specific nature of the "neighbourhood" of sharing economy [8] may suggest that older people are more interested in the social and local aspect of SE. They compensate for diminishing direct, interpersonal contacts by engaging in associative networks. Therefore, the social motivations to join the SE appear to be stronger for older people compared to younger people [4].

On the other hand, researches based on large-scale surveys such as the Eurobarometer of the European Union / The use of collaborative platforms [12], or carried out by consulting companies such as PwC (2016) [44], Deloitte (2015) [41] or various researchers (Smith, 2016) [42] find that, in general, age is inversely correlated with sharing economy participation, and the 25-29 age group is the most likely to have heard about the sharing economy [2]. Yoon and Occeña (2015) also find a negative

relationship between age and participation in the SE, respectively between age and general trust in participants in this economy [37]. Inquiring whether everyone has equal access to the sharing economy in tourism (SET), especially by age group, Kowalczyk-Anioł et al. (2021) find that, in Poland, 22% of respondents are potential participants, with an average age of 36. Those with high and very high chances of not participating in SET are significantly older than (potential) participants in SET, and they are almost one third of the total population. This is an element worthy of consideration for suppliers in this economy, given the aging of the population in Central-Eastern European countries [22].

Investigating the trust factor in the activity of two representative operators on the SET market, namely Airbnb and CouchSurfing, Dietl (2020) states that, in addition to the already known negative correlation between age and consumption intention, there is a strong negative correlation between age and attitudes of trust towards of the sharing economy, i.e. the desire to book accommodation using one of these platforms decreases with age. Furthermore, each dimension of trust identified in this research, namely ability, integrity, and benevolence, declines with age [10]. There are some differences between the two operators in this respect – slightly higher percentages of trust in favour of the Airbnb platform, easier to use by older people, with a more diverse range of offers, destinations, and reasons for travel, meanwhile CouchSurfing intentionally targets younger customers, that accepts the lowering of the comfort level for lower costs [32, 38].

3 Data Collection Procedure and the Hypotheses

In order to get an overview of how the collaborative tourism economy has changed we need to do a comparative analysis of how the collaborative accommodation industry and the traditional accommodation are viewed. The cross-sectional quantitative research was conducted with non-random convenience sampling in order to determine the impact of the collaborative Airbnb platform among Romanian tourists, how well-known it is and what elements motivate tourists to choose this platform. We also want to analyse the extent to which the benefits and innovations brought by this new phenomenon are in line with the needs and expectations of tourists and whether, at the level of Romania, they are interested in this phenomenon. At the same time, it is useful to analyse the extent to which tourists have chosen the Airbnb platform to stay in Romania or abroad.

To identify the impact that the collaborative platform Airbnb has among Romanian tourists, how well it is known and what elements motivate tourists to choose this platform, we applied a questionnaire. The questionnaire was designed to capture, as well as possible, the importance of the decision-making of consumers / tourists to book through the Airbnb platform and also looked at the most important reasons why some respondents did not book via the Airbnb. Therefore, the questionnaire was composed of three main parts: the first part contained information about the demographic of the respondents, i.e., age, gender, education level, function, residence and income level. The last question among the general ones marks the transition to the other two parts of the questionnaire, this being: "Have you booked accommodation through the Airbnb platform?". The second part contained 17 questions and are addressed to respondents who have booked a trip through the collaborative Airbnb platform. In the present research, we used only one of the 17 questions, namely the question regarding the main factors that determined the respondents to book a trip through the collaborative Airbnb platform. The subject had to appreciate on a scale from 1 to 5 (1-not at all important and 5-very important), the importance given to 10 factors that they take into account when choosing an accommodation through the platform. The coefficient α for the analysed subscale was 0.813. The third part of the questionnaire consists of four questions, which have several subscales and are for respondents who have not booked accommodation through the Airbnb platform by the time the questionnaire is completed. The questions of interest for this analysis are the questions related to trust, functional attributes, effectiveness, respectively the decision makers considered by the subjects as the most important decision makings, in case they would choose accommodation through this platform. In the second and third part of the questionnaire, all the measurement scales were evaluated on a 5-point Likert scale, where "1 = strongly disagree" to "5 = strongly agree" and "1 = not at all important" to "5 = very important". Before applying this questionnaire, we conducted a

pilot test on a sample of 20 subjects (10 who used the Airbnb platform and 10 who did not use the Airbnb platform) in order to verify the accuracy and precision of the questions asked, after which the questionnaire was revised according to the comments received from the 20 subjects.

For data collection, the questionnaire was transposed to an online format in Google Forms and sent to potential tourists from Romania, in May - June 2021, by email. We downloaded the data from Google Forms into MS Excel, IBM SPSS Statistics 26 (version 26.0.0, New York, NY, USA), and IBM SPSS Amos 26 (version 26.0.0, Amos Development Corporation, Wexford, PA, USA) and verified for coding accuracy. We made sure that the database is complete and does not contain missing data, this aspect being possible with the help of Google Forms which allows us to opt for mandatory answers. The descriptive statistic of the analysed factors and the principal component analysis (PCA) were performed in IBM SPSS Statistics. IBM SPSS Amos was used to test the structural equation modelling (SEM).

Based on the literature review, this study aims to: make a comparative analysis between the decision of consumers / tourists to book accommodation through Airbnb vs. the decision to book among consumers who have not done so far; identifying an association between Age and the decision of consumers / tourists to book accommodation through Airbnb; identifying an association between age and the reasons for potential consumers / tourists to book accommodation through Airbnb; identification of an association between the age of the subjects who until the moment of completing the questionnaire did not use the Airbnb platform and trust, effectiveness, the facility offered by this platform.

Starting from the mentioned objectives, we want to test the following three specific hypotheses, with the help of factor analysis and the structural equation modelling:

H1: There are significant differences between the classification made by respondents who booked through the Airbnb platform and those who did not book through the Airbnb platform in terms of decision making in choosing the Airbnb platform.

H2: Age influences the decision of consumers / tourists to book accommodation through Airbnb both for those who have booked through the Airbnb platform and for those who have not booked.

H3: There is an association between the age of the respondents that have not booked through the Airbnb platform and the reasons why respondents did not book accommodation through the Airbnb platform.

Respondents' profile / The sample

Among the 195 respondents (see Table 1), only 37% booked through the Airbnb platform, 63% did not book through the Airbnb platform until the time of completing the questionnaire. Of these, 65% of the respondents were female and 35% were male. Most of the respondents were aged 40–50 (28%), followed by the 20–30 group (25%) and the 30–40 age group (23%); 8% were aged 50 or above and 17% were aged 20 or below. If we divide the sample into two independent samples E1 - those who booked through the Airbnb platform and E2 - those who did not book through the Airbnb platform until the completion of the questionnaire, we can observe that in the case of the first sample, most respondents are under 40 years old, while in the second sample, the share is higher among respondents aged between 40 and 50 years. This aspect determined that in this study, we consider age as an important factor in the decision of consumers to choose accommodation through the Airbnb platform.

Another aspect that we analysed referred to the level of the income. Most of the respondents had an income above 3500 lei (79%), while 21% of the respondents had an income under 3499 lei. Moreover, the majority of the respondents had a bachelor's degree/university studies (69%), followed by those with a PhD degree (21%), and vocational school (9%). Regarding the position they hold, 75% have an executive function, while 25% have a leadership function. Most respondents resided in cities (68%), the rest lived in county seats (32%).

4 Results and discussion

The first objective of this research was to investigate the importance of decision makers to book accommodation through the Airbnb platform, respectively to analyse whether these factors are clas-

Table 1: Respondents' profile

Characteristics	Category	Total		Booked Airbnb (E1)		Not booked Airbnb (E2)	
		n	%	n	%	n	%
Age	20 years or below	34	17%	23	31.9%	11	8.9%
	20-30 Years	49	25%	17	23.6%	32	26.0%
	30-40 Years	44	23%	22	30.6%	22	17.9%
	40-50 Years	54	28%	8	11.1%	46	37.4%
	50-60 Years	13	7%	2	2.8%	11	8.9%
	61 Years or above	1	1%	0	0	1	0.8%
Gender	Female	127	65%	37	51.4%	90	73.2%
	Male	68	35%	35	48.6%	33	26.8%
Education Level	Graduate	2	1%	2	2.8%	0	0
	PhD/Postdoc	40	21%	22	30.6%	18	14.6%
	High school/Vocational studies	18	9%	3	4.2%	15	12.2%
	Univesity studies	135	69%	45	62.5%	90	73.2%
Function	Leadership function	49	25%	24	33.3%	25	20.2%
	Executive function	146	75%	48	66.7%	98	79.7%
Residence	Rural	62	32%	26	36.1%	36	39.3%
	Urban	133	68%	46	63.9%	87	70.7%
Level of income	2000-3499 lei	40	21%	4	5.6%	36	29.3%
	3500-5999 lei	75	38%	31	43.1%	44	35.8%
	6000-8499 lei	38	19%	14	19.4%	24	19.5%
	8500-12000 lei	42	22%	23	31.9%	19	15.4%
	Total respondents	**195**	**100%**	**72**	**37%**	**123**	**63%**

sified differently by respondents who booked accommodation through the Airbnb platform and those who did not book through the Airbnb platform. In order to determine the factors that influence the decision of consumers / tourists to book accommodation through the Airbnb platform, in the questionnaire we proposed 10 items that were analysed by respondents on a 5-point Likert scale, ranging from 1 - not at all important, to 5 - very important. The 10 items are: Number of accommodation reviews (D1-Dn1), Accommodation facilities (D2-Dn2), D3 Price (D3-Dn3), Maximum number of guests (D4-Dn4), Host response time (D5-Dn5), Location of the accommodation (D6-Dn6), Access to public transport (D7-Dn7), Fees additional (D8-Dn8), Cancellation policy (D9-Dn9), Check-in and check-out process (D10-Dn10). As the questionnaire was divided into two, those who booked through the Airbnb platform and those who did not book through the Airbnb platform, in Table 2 below we compute the mean and the standard deviation (SD) for each item considering the two independent samples.

Starting from these results we could identify which factor was considered by respondents as the most important. We noted that the highest average value was in case of the Number of accommodation reviews (D1 - mean = 4.56 and Dn1 – mean = 4.19), so we can say that for tourists, reviews are a very important decision factor when booking accommodation. The second decision factor in booking accommodation through Airbnb is the price (D3 - mean = 4.55 and Dn3 – mean = 4.05). Access to public transport seems to be the least important decision factor (Dn7 – mean = 3.42).

In order to test the validity of the measurement models and the reliability of the scales used, we will use factor analysis. This analysis was performed in the IBM SPSS v26 statistical analysis program and required specification of the type of scale tested. The Principal Component Analysis (PCA) is based on the work of Pearson (1901) [29] and Hotelling (1933) [17] and has been analysed for several decades [7, 19]. This method is one of the most widely used methods for reducing the size of large databases in the presence of collinearity.

The objectives of the PCA are to: extract the most important information from a larger data set; reducing the attribute space from a larger number of variables to a smaller number of factors; selecting a subset of variables from a larger set, based on which the original variables have the highest correlations with the principal component [1]. In order to achieve these goals, PCA calculates new variables called principal components that are obtained as linear combinations of the original variables.

Table 2: Decision factors

Latent Constructs	Items	Mean	SD	Cronbach's α
Decision factor **(Booked through the Airbnb platform)** (mean=4.20)	D1	4.56	0.64	0.813
	D2	4.31	0.74	
	D3	4.55	0.50	
	D4	3.87	0.97	
	D5	4.06	0.96	
	D6	4.31	0.74	
	D7	4.00	1.02	
	D8	3.95	0.86	
	D9	4.19	0.72	
	D10	4.23	0.68	
Decision factor **(Not booked through the Airbnb platform)** (mean=4.20)	Dn1	4.19	0.133	0.813
	Dn2	3.92	1.178	
	Dn3	4.05	1.122	
	Dn4	3.56	1.268	
	Dn5	3.82	1.208	
	Dn6	4.02	1.152	
	Dn7	3.42	1.274	
	Dn8	3.88	1.184	
	Dn9	3.76	1.215	
	Dn10	3.50	1.276	

The values obtained for these new variables are called factor scores. In the analysis of the principal components, several criteria are used to choose the number of components, of which the most important are: Kaiser's criterion, Evrard's criterion, Benzecri's criterion [33, p. 507]. Kaiser's criterion is to choose the number of axes for which the eigenvalues correspond to a value greater than one. To begin with, we applied the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett test to determine if there is a sufficiently high correlation to perform this analysis. According to the theory, KMO statistics values below 0.50 indicate that the PCA analysis may not be adequate [24, 27]. Regarding the specificity test of the Bartlett test, we can say that the variables are correlated only if the p value of the test (Sig.) is less than 0.05 [23].

Table 3: Principal components analysis on the importance of the consumers' decision-making regarding the booking through the Airbnb platform

	Booked through the Airbnb platform (E1)				**Did not book through the Airbnb platform (E2)**
KMO measure			0.757		0.923
Bartlett's Test of Sphericity (Sig.)			0.000		0.000
	Component				Component
	1	2	3		1
Item	**Services**	**Taxes**	**Facilities**	Item	**Decision**
D1	0.226	0.112	0.690	**Dn1**	0.823
D2	0.204	-0.077	0.852	**Dn2**	0.895
D3	-0.096	0.378	0.672	**Dn3**	0.808
D4	0.718	-0.048	0.202	**Dn4**	0.805
D5	0.666	0.509	-0.050	**Dn5**	0.859
D6	0.743	0.223	0.144	**Dn6**	0.824
D7	0.772	0.147	0.103	**Dn7**	0.646
D8	0.375	0.497	0.371	**Dn8**	0.810
D9	0.109	0.873	0.108	**Dn9**	0.876
D10	0.176	0.881	0.096	**Dn10**	0.779

Extraction Method: Principal Component Analysis

According to the results presented in Table 3, we can argue that the analyzed variables are correlated both in the case of sample E1 and in the case of sample E2. Therefore, the PCA analysis is adequate, the value of the KMO statistic being greater than 0.50, i.e., 0.757 in the case of sample E1 and 0.923 in the case of sample E2, and the p value of the specificity test is equal to 0.000 in the case of both samples. Based on these results, we can state that in the case of the first sample (E1), three distinct variables were constructed. The first measures the importance of decision factors

related to Services (D4, D5, D6 and D7), the second is related to the importance of decision factors related to Taxes (D8, D9 and D10), and the third is related to the importance of decision factors regarding Facilities (D1, D2, D3). In the case of the second sample (E2), we observe a single variable that measures the importance of decision makers regarding accommodation through the Airbnb platform. These results allowed us to identify the differences between the two samples in terms of the importance given to these decision makers. Therefore, we can argue that in the case of the first sample, the respondent gives more importance to the decision factors regarding the Services, they are followed by those regarding the Taxes and finally we have the factors regarding the Facilities offered. In the case of the second sample, we notice a different situation. Thus, in case of the respondents who have not yet booked accommodation through the Airbnb platform, all 10 factors seem equally important in choosing the Airbnb platform for booking accommodation. Therefore, we can argue that the importance of these decision factors of consumers / tourists to book accommodation through the Airbnb platform differs depending on the category they belong to, namely E1 - booked accommodation through the Airbnb platform, respectively E2 - did not book accommodation through the Airbnb platform, the first hypothesis being verified.

In order to verify the other two hypotheses, we will take into account the Age variable. Given the structure of the population according to Age, we noticed a difference between the average age in the first sample E1 and that in the second sample E2. Thus, the average age of the respondents who booked through the Airbnb platform is lower than the average age of the respondents who did not book through the Airbnb platform until the completion of the questionnaire. Given this difference in age and also the difference in classification of decision makers regarding the booking of accommodation through the Airbnb platform, we further want to determine for each sample whether between the age of respondents and the decision to book accommodation through AIRBN there is a possible association and also if it is positive or negative. In this sense, we will use the structural equation modelling (SEM) both in the case of the first sample E1 and in the case of the second sample E2.

Considering the factorial analysis, we will further verify whether age is a factor that influences the decision of the consumer / tourist to book accommodation through the Airbnb platform using a structural equation modelling (SEM). According to the literature, the most commonly used parameter estimation methods in SEM models are the maximum probability estimation method and the least squares method. After estimating the model, we identified the following fit indexes: Chi-square (indicates the square root of the average of the residual values) is equal to $112.945 > 0.05$, which shows us that the model is a suitable one; the RMSEA index (Root Mean Square Error of Approximation) is $0.08 \leq 0.08$, indicating that the model is acceptable; the GFI (Goodness of Fit Index) obtained after the correspondence test is 0.705, an acceptable value; parsimonious fit index is 0.493, close to 0.50.

As can be seen from the results shown in Figure 1, we can affirm that the age of the respondents who stayed through the Airbnb platform is not a factor influencing the decision-makers of consumers when they want to book accommodation through the Airbnb platform. In other words, given the wide range of options in question 1 of the questionnaire (from under 20 to over 61), we can say that age is not an impediment to the widespread use collaborative platforms in the field of tourism. On the other hand, in this analysis, we did not take into account the proportion with which the different age groups enter collaborative tourist consumption, and even more so, what is the distribution of preferences for a certain type of consumption and tourist reservation (traditional vs. collaborative) depending on the age group.

The fact that the paragraphs of the descriptive analysis of the results of this questionnaire indicate that the vast majority of respondents who say they use these platforms are young and very young (under 30), may raise some reservations about the representativeness of the results at the level of groups of older age (over 50 years). It is an aspect that we want to deepen in our future research, highlighting the availability and accessibility of these platforms and, respectively, the degree of digitalization and confidence of older people compared to the opportunities offered by these platforms. Therefore, we can say that the second research hypothesis is not verified.

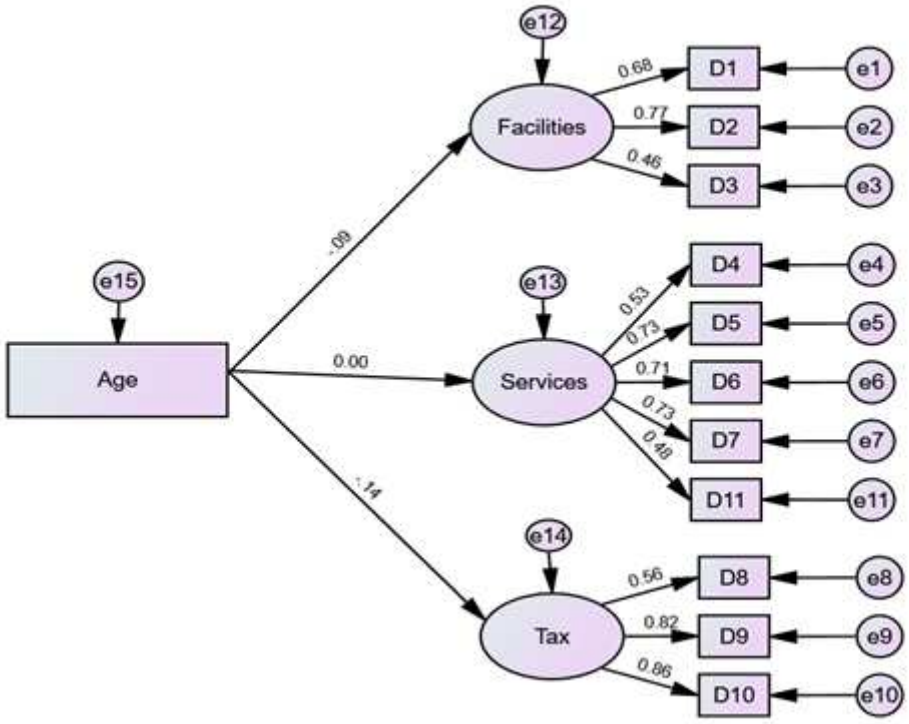

Figure 1: Structural equation modelling - the relationship between age and respondents' decision to book accommodation through the Airbnb platform

Furthermore, we would like to find out whether among the respondents who did not book accommodation through the Airbnb platform (sample E2), age is a factor that influences these decision factors in order to book accommodation through the Airbnb platform. The values of the fit indexes of the estimated model in case of the sample E2 are: Chi-square is equal to $127.74 > 0.05$, so the model is a suitable one; the RMSEA index is $0.075 \leq 0.08$, indicating that the model is acceptable; the GFI index equal to 0,915 shows us a good fit of the model; the parsimonious fit index (PFI) is $0.701 < 0.50$, therefore the model is a suitable one (Ramkissoon, 2015).

According to the results obtained and presented in Figure 2, we can say that in the case of respondents who did not book accommodation through Airbnb until completion, age is a factor that influences decision makers when they would opt for a reservation through the Airbnb platform. Given the negative value of the coefficient, -0.31, we can argue that age influences these factors in a negative way. Thus, the older you are, the less it matters the importance is given to these decision makers.

This result can show us on the one hand that young people are more open to using an Airbnb-type platform to book accommodation unlike older people, who are more reluctant to use such a platform. to the detriment of traditional accommodation, but on the other hand we could say that for young people, the importance of decision makers regarding the services, fees and facilitation offered through the Airbnb platform is greater than in the case of older age groups.

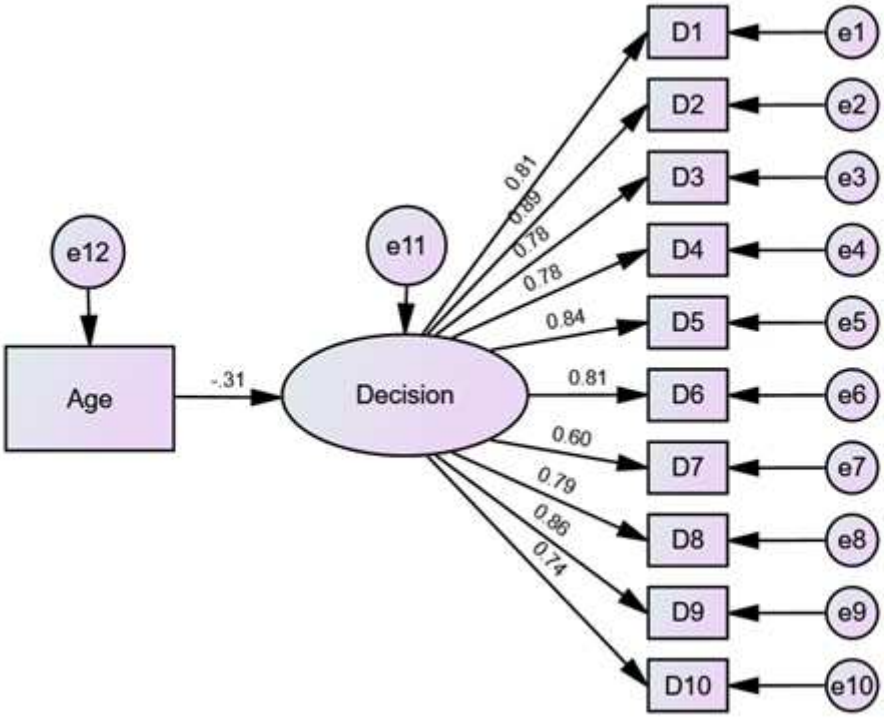

Figure 2: Structural equation modelling - the relationship between age and respondents' decision to book accommodation through the Airbnb platform

Given that in this sample it is more difficult to follow the importance of decision makers regarding accommodation through the Airbnb platform, we will further test the SEM model that analyzes the impact of age on the reasons why they did not book accommodation through the Airbnb platform. This analysis is based on 3 latent variables related to: trust in the Airbnb platform to book accommodation (Trust), the functional attributes offered by the Airbnb platform (Functional attributes) and the effectiveness of the Airbnb platform (efficacy). The overall model fit and the indicators of goodness of fit model shows that: Chi-square is equal to $308.22 > 0.05$, so the model is a suitable one; the RMSEA index is $0{,}079 \leq 0.8$, indicating that the model acceptable; the GFI index obtained after the correspondence test is 0,727; the parsimonious fit index is $0{,}587 > 0.50$, therefore the model is a suitable one.

As can be seen in Figure 3, age influences the reasons why respondents in the second sample did not book accommodation through the Airbnb platform. Among the main reasons analyzed is the confidence in the Airbnb platform which is influenced to a lesser extent and negatively by age, while the efficiency of this platform and the operating attributes of the platform are positively influenced by the age of the respondents. According to the results, the functional attributes are influenced to a large extent by age. Thus, starting from the first coefficient, -0.07, we can state the following: respondents belonging to the older age groups (40 and 50 years old) claimed that the trust in the platform was not a reason why they did not book accommodations through Airbnb, while the respondents under the age of 40 stated that the trust in this platform was one of the reasons why they did not book through it. The latter stated that they were concerned about the security of accommodations through the Airbnb platform, also about data confidentiality, trust in hosts and the legal framework for conducting business, and lastly about the trust in conducting an online transaction through the platform. The effectiveness of the platform is also influenced by age, but, as in the case of trust, to a small extent. In the case of this variable we observed a positive value of the coefficient, 0.05.

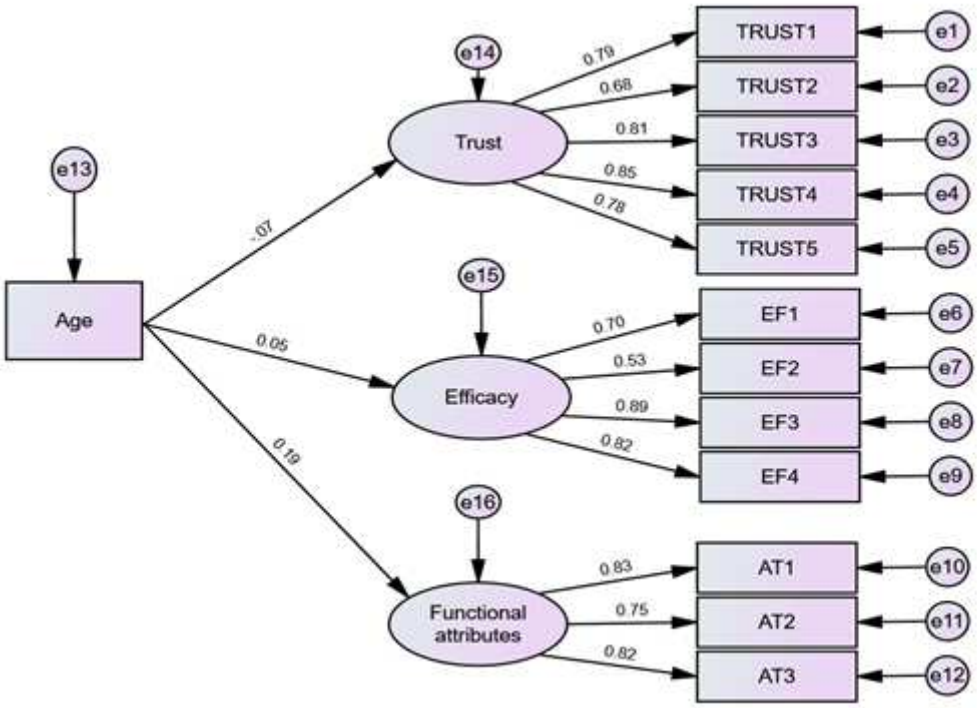

Figure 3: Structural equation modelling - the relationship between age and the reasons why respondents did not book accommodation through the Airbnb platform

Thus, we can state that the respondents from the older age groups (over 40 years old) did not use the services offered by the Airbnb platform because they considered that it did not provide enough information about how this platform works and what it is. Also, they did not succeed to easily find the list of holiday rentals online, respectively they had limited accommodation offers. A last factor analyzed is the one referring to the functional attributes offered by the Airbnb platform, this being influenced by age, in a positive sense. The results show that the lack of facilities, the lack of availability in the desired period and the lack of several dining options are reasons why respondents from older age groups (40-50 years) did not book accommodations through Airbnb, while in in the case of the youngest (under 30), these were not the main reasons why they did not book through the Airbnb platform. In conclusion, we can say that hypothesis 3 is verified.

5 Conclusions

In order to identify the impact that the collaborative platform Airbnb has on Romanian tourists and what are the elements that motivate tourists to choose this platform, we used the principal component analysis (PCA) and the structural equation modelling (SEM).

According to the Principal Component Analysis, it was found that there are significant differences between the classification made by respondents who booked through the Airbnb platform and those who did not book through the Airbnb platform in terms of decision making in choosing the Airbnb platform. Therefore, it was observed that the respondents who booked accommodation through the Airbnb platform gave more importance to the decision factors regarding the Services, followed by those regarding the Taxes and finally we have the factors regarding the Facilities offered. In the case of the respondents who did not book accommodations through the Airbnb, we noticed that for these, all 10 factors seem equally important in choosing the Airbnb platform for booking accommodations. Therefore, we can state that the first hypothesis is verified.

In the case of the second hypothesis, we can say that it is only partially verified. Thus, in the case of the first sample, age does not represent an influencing factor in the decision to book accommodations through Airbnb, while in the case of the second sample, age influences the decision to book

accommodations through Airbnb. To test the third hypothesis, we applied a SEM model. The results showed that there is an association between the age of the respondents that they have not booked through the Airbnb platform and the reasons why respondents did not book accommodations through the Airbnb platform. Thus, the most important factors that are influenced by age are the functional attributes, followed by trust and ultimately efficacy.

This study also has a number of limitations. A first limitation of this study is related to the small number of respondents who completed this questionnaire. Also, another limitation is represented by the very small number of respondents who booked accommodation through Airbnb and answered this questionnaire. For future studies, we propose to increase the number of the sample among those who booked accommodation through Airbnb to obtain a better generalization statement for this research. Further, a potential limitation of this study relates to the nature of the data. This questionnaire was conducted following a cross-sectional survey design in which information was collected only at a specific point in time. Given that the stability of causal relationships within a cross-sectional survey method is difficult, we suggest that future studies use a longitudinal data design.

Funding

The APC was funded by the University of Oradea, within the Grants Competition "Scientific Research of Excellence Related to Priority Areas with Capitalization through Technology Transfer: INO-TRANSFER-UO", Project No. 234/2022.

Author contributions

The authors contributed equally to this work.

Conflict of interest

The authors declare no conflict of interest.

References

[1] Abdi, H.; Williams, L. (2010). Principal component analysis, *WIREs Computational Statistics*, 2, 433-459, 2010.

[2] Andreotti, A; Anselmi, G.; Eichhorn, T.; Hoffman, C.P.; Jürss, S.; Micheli, M. (2017). *Report from the EU H2020 Research Project Ps2Share: Participation, Privacy, and Power in the Sharing Economy. Participation in the Sharing Economy*, European Union's Horizon 2020, 2017.

[3] Belk, R. (2014) Sharing versus pseudo-sharing in Web 2.0., *Anthropologist*, 18(1), 7-23, 2014.

[4] Böcker, L; Meelen, T. (2017). Sharing for people, planet or profit? Analysing motivations for intended sharing economy participation, *Environmental Innovation and Societal Transitions*, 23, 28-39, 2017.

[5] Botsman, R.; Rogers, R. (2010). *What's Mine is Yours: How Collaborative Consumption is Changing the Way We Live*, London: Collins, 2010.

[6] Brasoveanu, A.M.P.; Dzitac, I. (2012). The Role of Visual Rhetoric in Semantic Multimedia: Strategies for Decision Making in Times of Crisis, *International Journal of Computers Communications & Control*, 7(4), 606-616, 2012.

[7] Cattell, R. (1966). The Scree Plot Test for the Number of Factors, *Multivariate Behavioral Research*, 1(1), 140-161, 1966.

[8] Cornwell, B.; Laumann, E.; Schumm, L. (2008). The social connectedness of older adults: a national profile, *American Sociology Review*, 73(2), 185-203, 2008.

[9] Dabbous, A.; Tarhini, B. (2021). Does sharing economy promote sustainable economic development and energy efficiency? Evidence from OECD countries, *Journal of Innovation & Knowledge*, 6(1), 58-68, 2021.

[10] Dietl, K. (2020). *Trust in the Sharing Economy. A Comparative Analysis between Two Platforms with Adverse Profit Orientation. Master's Thesis*, Linz, Austria: Johannes Kepler University, 2020.

[11] Ert, E.; Fleischer, A.; Magen, N. (2016). Trust and reputation in the sharing economy: The role of personal photos in Airbnb, *Tourism Management*, 55, 62-73, 2016.

[12] European Union (2016). *The use of collaborative platforms. Flash Eurobarometer: Vol. 438* Luxembourg: Publications Office, 2016.

[13] Gandini, A.; Pais, I; Beraldo, D. (2016). Reputation and trust on online labour markets: the reputation economy of Elance, *Work Organisation, Labour and Globalisation*, 10(1), 27-43, 2016.

[14] Giddens, A. (1990). *The consequences of modernity*, Stanford, CA, USA: Stanford University Press, 1990.

[15] Hamari, J.; Sjöklint, M.; Ukkonen, A. (2015). The sharing economy: why people participate in collaborative consumption, *Journal of the Association for Information Science and Technology*, 67(9), 2047-2059, 2015.

[16] Hellwig, K.; Morhart, F.; Girardin, F.; Hauser, M. (2015). Exploring different types of sharing: a proposed segmentation of the market for sharing businesses, *Psychology & Marketing*, 32(9), 891-906, 2015.

[17] Hotelling, H. (1933). Analysis of a complex of statistical variables into principal components, *Journal of Educational Psychology*, 24, 417-444, 1933.

[18] Hsiao, J.-Y.; Moser, C.; Schoenebeck, S.; Dillahunt, T. (2018). *The Role of Demographics, Trust, Computer Self-efficacy, and Ease of Use in the Sharing Economy*, New York, NY, USA: Association for Computing Machinery, 2018.

[19] Jolliffe, I.; Cadima, J. (2016). Principal component analysis: a review and recent developments, *Philosophical transactions. Series A, Mathematical, physical, and engineering sciences*, 374(2065), 20150202, 2016.

[20] Kaklauskas, A. (2015). *Intelligent Decision Support Systems. In: Biometric and Intelligent Decision Making Support*, Cham, Switzerland: Springer International Publishing, 2015.

[21] Kaklauskas, A.; Zavadskas, E. K.; Šaparauskas, J. (2009). Conceptual modelling of sustainable Vilnius development, *Technological and Economic Development of Economy*, 15(1), 154-177,2009.

[22] Kowalczyk-Anioł, J.; Łaszkiewicz, E.; Warwas, I. (2021). Is the sharing economy inclusive? The age-related segmentation of Polish inhabitants from the perspective of the sharing economy in tourism, *Innovation: The European Journal of Social Science Research*, 1-21, 2021.

[23] Larouse, D. (2006). *Data Mining. Methods and Models*, Hoboken, NJ, USA: John Wiley & Sons, 2006.

[24] Lebart, L.; Piron, M.; Morineau, A. (2006). *Statistique Exploratoire Multidimensionnelle. Visualisation et Inférences en Fouille de Données.* Paris, France: Dunod, 2006.

[25] Möhlmann, M. (2015). Collaborative consumption: determinants of satisfaction and the likelihood of using a sharing economy option again, *Journal of Consumer Behaviour*, 14(3), 193-207, 2015.

[26] Negro, S.; Alkemade, F.; Hekkert, K. (2012). Why does renewable energy diffuse so slowly? A review of innovation system problems, *Renewable and Sustainable Energy Reviews*, 16(6), 3836-3846, 2012.

[27] Pallant, J. (2007). *SPSS Survival Manual: A Step By Step Guide to Data Analysis Using SPSS*, Sydney, Australia: Allen & Unwin, 2007.

[28] Parigi, P.; State, B. (2014). *Disenchanting the world: The Impact of technology on relationships. In: International Conference on Social Informatics*, Cham, Switzerland: Springer International Publishing, 2014.

[29] Pearson, K. (1901). On lines and planes of closest fit to systems of points in space, *Philosophical Magazine*, 2, 559-572, 1901.

[30] Pitic, A.E.; Dzitac, S. (2013). Raising Energy Saving Awareness Through Educational Software, *International Journal of Computers Communications & Control*, 8(2), 255-262, 2013.

[31] Ramkissoon, H. (2015). Authenticity, satisfaction, and place attachment: A conceptual framework for cultural tourism in African island economies, *Development Southern Africa*, 32, 292-302, 2015.

[32] Rosen, D.; Lafontaine, P.; Hendrickson, B. (2011). CouchSurfing: Belonging and trust in a globally cooperative online social network, *New Media & Society*, 13(6), 981-998, 2011.

[33] Saporta, G.; Stefanescu, M. (1996) *Analiza datelor şi informatică*, Bucharest, Romania: Editura Economica, 1996.

[34] Tussyadiah, I. (2016) Factors of satisfaction and intention to use peer-to-peer accommodation, *International Journal of Hospitality Management*, 55, 70-80, 2016.

[35] Tussyadiah, I.; Pesonen, J. (2015). Impacts of peer-to-peer accommodation use on travel patterns, *Journal of Travel Research*, 55(8), 1022–1040, 2015.

[36] Wagner, N.; Strulak-Wójcikiewicz, R.; Landowska, A. (2019). Trust in Sharing Economy Business Models from the Perspective of Customers in Szczecin, Poland, *Sustainability*, 11(23), 6838, 2019.

[37] Yoon, H.; Occeña, L. (2015). Influencing factors of trust in consumer-to-consumer electronic commerce with gender and age, *International Journal of Information Management*, 35(3), 352–363, 2015.

[38] Zervas, G.; Proserpio, D.; Byers, J. (2017). The rise of the sharing economy: Estimating the impact of Airbnb on the hotel industry, *Journal of Marketing Research*, 54(5), 687-705, 2017.

[39] Zhong, H.D.; Zhang, S.; Wang, Y.; Shu, Y. (2014). Study on Directed Trust Graph Based Recommendation for E-commerce System, *International Journal of Computers Communications & Control*, 9(4), 510-523, 2014.

[40] [Online]. Available: https://www.brookings.edu/blog/techtank/2017/01/09/sharing-economy-offers-flexibility-and-efficiency-to-consumers/, Accesed on 22 July 2022.

[41] [Online]. Available: https://www2.deloitte.com/ch/en/pages/consumer-business/articles/the-sharing-economy.html„ Accesed on 8 July 2022.

[42] [Online]. Available: http://www.pewinternet.org/2016/05/19/the-new-digital-economy/, Accesed on 7 July 2022.

[43] [Online]. Available: https://www.pwc.com/hu/en/kiadvanyok/assets/pdf/sharing-economy-en.pdf, Accesed on 15 July 2022.

[44] [Online]. Available: https://www.pwc.co.uk/issues/megatrends/collisions/sharingeconomy/future-of-the-sharing-economy-in-europe-2016.html, Accesed on 6 July 2022.

[45] [Online]. Available: https://www.statista.com/statistics/830986/value-of-the-global-sharing-economy/, Accesed on 12 July 2022.

Appendix

Item	Statement
Respondents' decision to book accomodation through the Airbnb platform	
D1	Number of accomodation reviews
D2	Accomodation facilities
D3	Price
D4	Maximum number of guests
D5	Host response time
D6	Location of the accomodation
D7	Access to public transport
D8	Additional fees
D9	Cancellation policy
D10	Check-in and check-out process
Respondents' decision not to book accomodation through the Airbnb platform	
Dn1	Number of accomodation reviews
Dn2	Accomodation facilities
Dn3	Price
Dn4	Maximum number of guests
Dn5	Host response time
Dn6	Location of the accomodation
Dn7	Access to public transport
Dn8	Additional fees
Dn9	Cancellation policy
Dn10	Check-in and check-out process
The reasons why respondents did not book accommodation through the Airbnb platform	
TRUST1	I was worried about the security of the accommodation
TRUST2	I was concerned about the confidentiality of personal data
TRUST3	I did not trust the hosts
TRUST4	I consider that the activity of the host does not take place within a well-defined legal framework
TRUST5	I did not trust the online platform for executing the transaction
AT1	Lack of facilities
AT2	Lack of availability in the desired period
AT3	Lack of more dining options (half board, all inclusive)
EF1	I did not have enough information on how it works
EF2	I did not know what the Airbnb platform was
EF3	It has not been easy to find a list of holiday rentals online
EF4	The accommodation offer was limited for the searched location

Copyright ©2022 by the authors. Licensee Agora University, Oradea, Romania.
This is an open access article distributed under the terms and conditions of the Creative Commons Attribution-NonCommercial 4.0 International License.
Journal's webpage: http://univagora.ro/jour/index.php/ijccc/

This journal is a member of, and subscribes to the principles of,
the Committee on Publication Ethics (COPE).
https://publicationethics.org/members/international-journal-computers-communications-and-control

Cite this paper as:

Badulescu, A.; Badulescu, D.; Simut, R.; Herte, E.; Borma, A.; Pandelica, I. (2022). Digitalisation and the sharing economy. A survey-based research on Airbnb in Romania, *International Journal of Computers Communications & Control*, 17(6), 5004, 2022.

https://doi.org/10.15837/ijccc.2022.6.5004