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Understanding Users' Multi-Homing Intention on Peer-to-Peer Accommodation Platforms

(Full Paper)

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ABSTRACT

An intriguing phenomenon in short-term accommodation market is that most users would adopt more than one accommodation platforms simultaneously, instead of being committed to utilizing only one platform. However, little attention has been paid to the underlying mechanisms about why users employ multiple accommodation platforms concurrently. To bridge the research gap, this study proposes a research model to investigate users' multi-homing intention on accommodation platforms by combining benefit-cost framework, social influence and need for cognition theory. This model is tested using data collected from 437 users who have ever used multiple accommodation platforms. Analytical results indicate that perceived information complementarity and decision complementarity contribute to users' multi-homing intention. Social influence and need for cognition have significant positive effects on the intention. Moreover, seeking cost decreases users' intention to adopt several competing platforms at the same time, while integration cost promotes the intention. At the end, implications for research and practice as well as limitations of this study are discussed.

Keywords: Peer-to-Peer accommodation platforms, multi-homing intention, information complementarity, decision complementarity, seeking cost, need for cognition.

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INTRODUCTION

With the rise of the sharing economy, peer-to-peer accommodations have become popular in tourism and hospitality markets. Numerous peer-to-peer accommodation platforms rose quickly, such as Airbnb, HomeAway, XiaoZhu, TuJia and so on. A survey conducted by National Information Center revealed that in China, the market turnover of the sharing accommodation was about 14.5 billion yuan in 2017, up 70.6% year-on-year. The main peer-to-peer accommodation platforms offer 3 million houses, with a total of about 76 million users.

The rapid development of peer-to-peer accommodation platforms (PPAP) provides more choices for people. They can freely choose hotels or multifarious sharing accommodations through different accommodation platforms according to their travel conditions. Interestingly, people are not completely loyal to one accommodation platform. It is a common practice that people are multi-homing on accommodation platforms, that is, people adopt several competing platforms concurrently (Gu, Oh, & Wang, 2016; Hu, Zhao, Zou, & Teng, 2017; Hwang & Oh, 2009).

Competing platforms usually offer services that are similar in nature but slightly different in features (Hu et al., 2017; Hwang & Oh, 2009). Consequently, when faced with multiple competing platforms, users do not adopt just one of those platforms, but tend to use multiple platforms at the same time to capture more benefits. Users' concurrent utilization of competing platforms has intensified the competition between different accommodation platforms (Cennamo, Ozalp, & Kretschmer, 2018; Koh & Fichman, 2014; Loginova, Wang, & Liu, 2018). Therefore, it is interesting to identify the antecedents of users' multi-homing intention on accommodation platforms, which would make both academics and practitioners gain insights into users' platform usage behavior, thus helping the accommodation platform service providers improve their competitive strategies to attract and retain users.

However, scant attention has been paid to the multi-homing of accommodation platforms. Previous studies on the usage of accommodation platforms mainly focused on users' adoption intention (Poon & Huang, 2017; So, Oh, & Min, 2018; Tussyadiah & Pesonen, 2018; Wu, Zeng, & Xie, 2017), continuous use intention (Mao & Lyu, 2017; Tussyadiah, 2016; C. R. Wang & Jeong, 2018; Yang, Lee, Lee, Chung, & Koo, 2016) and switching intention of a particular peer-to-peer accommodation platform (L. J. Liang, Choi, & Joppe, 2018), or the impact of peer-to-peer accommodation platforms on hotel industry (Blal, Singal, & Templin, 2018; Guttentag & Smith, 2017), but largely ignored the underlying mechanisms of the simultaneous use of multiple competing accommodation platforms which is an intriguing phenomenon in the accommodation sector. Therefore, this study sets up to investigate what drives users' multiple usage of accommodation platforms.

Since users always act after weighing costs against benefits (F. C. Tseng & Teng, 2014), this study draws on the benefit-cost framework to explore the factors which lead to the concurrent use of competing accommodation platforms. As users obtain accommodation information and make choices depending on the information which is provided by multifarious accommodation

platforms, the benefit that users perceived from multi-homing usage on accommodation platforms is that they can access and compare a variety of information to satisfy their diverse needs. While the multifarious information also means that users need to spend more time and energy searching for and integrating information. Thus, this study concentrates on the perceived benefits and costs from information aspect.

In addition to benefit-cost factors, social factors and individual personality factors may also affect users' multi-homing behavior as this behavior occurs in certain social environment and is closely associated with users' cognitive capacity to deal with multiple-source information. Specifically, social influence which has been widely discussed in the adoption behavior of a single technology as well as need for cognition which reflects users' tendency to consider more information when making a decision are included in the research model.

The remainder of this paper is structured as follows. In the next section, we review extant related literature and present the theoretical background for this study. Then we put forward the research model and develop the hypotheses. In the two subsequent sections, the research methodology is introduced and the data analysis results are reported. At the end, the key findings of this study, the implications for theory and practice, as well as the limitations of this paper are discussed.

LITERATURE REVIEW

Multi-homing Behavior

Multi-homing can be described as the propensity that a user has access to multiple services or platforms with similar functions concurrently (Gu et al., 2016; Hu et al., 2017; Kwon & Oh, 2014; Rochet & Tirole, 2003). Multi-homing behavior has been widely researched in various fields, such as credit card industry, telecommunication industry, e-commerce industry, social networking sites (SNSs), mobile applications and so on (Finley & Basaure, 2018; Gu et al., 2016; Hu et al., 2017; Koh & Fichman, 2014; Kwon & Oh, 2014; Mital & Sarkar, 2011; F. C. Tseng & Teng, 2014).

Much of the literature on multi-homing has explored the antecedents of users' multi-homing behavior. These papers mainly study this phenomenon from three aspects, namely product-related factors, personality-related factors and external environment-related factors.

As for the product-related aspect, product complementarity is acknowledged as an important driver of multi-homing behavior. The complementarities among platforms which are caused by the slight differentiation of competing products provide users with more benefits, thus leading users to adopt several platforms at the same time (Gu et al., 2016; Hu et al., 2017; Hwang & Oh, 2009). In addition to the complementary feature, perceived cost is another product-related factor that affects users' multi-homing intention. With the development of internet technology, it is possible for users to embrace several online services concurrently without incurring a high cost (Hwang & Oh, 2009). The relatively low adoption or switching costs allow users to mix the utilization of multiple online platforms. While F. C. Tseng and Teng (2014) also proposed that perceived relational switching cost lower users' intention to utilize multiple platforms.

In terms of personality-related factors, extant researches on multi-homing behavior concentrated on personal traits like inherent novelty seeking and variety seeking. Optimum stimulation level theory, a psychological theory which is similar to the need for cognition theory that emphasizes individuals' preference for more novel or complex activities (Cacioppo & Petty, 1982; Gu et al., 2016; Utkarsh, 2017), is often applied to explain why users adopt a portfolio of competing services or platforms rather than committing to using just one of them (Gu et al., 2016; Hu et al., 2017; F. C. Tseng & Teng, 2014). Regarding external environment-related factors, prior studies mainly pay attention to the impact of other users, such as network externalities and social influence, which can induce users to consider it useful and worthwhile to use multiple platforms concurrently (Gu et al., 2016; F. C. Tseng & Teng, 2014).

Extant literature on multi-homing behavior motivates us to explore the simultaneous use of multiple accommodation platforms from the three aspects, namely product-related benefit-cost factors, personality trait namely need for cognition, and external factor namely social influence.

The Benefit Side: Complementarity

The concept "complementarity" is defined that "whereby activities are considered complements if doing (more of) any one of them increases the returns to doing (more of) the others" (Gu et al., 2016, p754). The notion of complementarity has been widely applied to many areas to explore users' or consumers' adoption or usage behavior, such as electronic commerce (Hwang & Oh, 2009), marketing (Koukova, Kannan, & Ratchford, 2008), social networking site (Gu et al., 2016), mobile instant messaging (F. C. Tseng, Pham, Cheng, & Teng, 2018) and knowledge management (Choi, Poon, & Davis, 2008). Previous studies on complementarity have showed that complementarity exerts a profound impact on an individual's behavior. Therefore, it is crucial to take the complementarity factors into account when studying users' utilization behaviors.

Users adopt products with complementarity entailing that they can obtain a higher utility than just using one product (Hwang & Oh, 2009). That is, users perceive more benefits because complementary products meet their various demands. As users' purpose of using accommodation platforms is to obtain various kinds of accommodation information and information varies from platform to platform (Hu et al., 2017), users would have to adopt several accommodation platforms to satisfy their information

demands. Besides, different platforms may have different functions (e.g., recommendation systems or decision support systems) to help users to make decisions. Thus, users can employ a variety of functions of different platforms to make their decisions. Therefore, in this study, the complementarity benefits perceived by users include both information complementarity and decision complementarity (e.g., information processing).

The Cost Side: Cost in Information Seeking and Integrating

There is a common view that perceived costs would reduce users' willingness to adopt one platform (F. C. Tseng & Teng, 2014; S. M. Tseng & Lee, 2016; Zhu, So, & Hudson, 2017). In this study, perceived costs can be classified into two aspects: seeking cost and integration cost. Seeking cost, arising from the process of finding product or service related information, includes the time and effort costs of undertaking the information search activities (T. P. Liang & Huang, 1998; Srinivasan & Ratchford, 1991; S. M. Tseng & Lee, 2016). Integration cost incurs at the stage of processing and comparing information (S. M. Tseng & Lee, 2016). In order to find an appropriate service or product and get the best transaction possible, people would spend more time and effort comparing information, such as comparing prices or other features based on what they searched (Teo & Yu, 2005; S. M. Tseng & Lee, 2016). Wang and Sahin (2018) stated that as search cost which is a combination of seeking cost and integration cost is an integral part of individual search and choice behavior, it is necessary to consider the impact of search cost when studying user behavior. The high seeking and integration costs bring users losses directly and then influence the subsequent user behavior (Hoque & Lohse, 1999; Teo & Yu, 2005).

Social Influence

Social influence is one of the most frequently used concepts to explain individuals' usage behavior. Social influence refers to the manner in which people affect a person's decision-making (E. S. T. Wang & Chou, 2016). It occurs when an individual's behavior is influenced by those around him or her (Qin, Kim, Hsu, & Tan, 2011). Social influence has been theorized in IT usage researches and theories, such as the unified theory of acceptance and use of technology (Venkatesh, Morris, Davis, & Davis, 2003). A large body of literature has empirically demonstrated that social influence has a positive correlation with user's adoption behavior (Gu et al., 2016; So et al., 2018; Venkatesh et al., 2003; Venkatesh, Thong, & Xu, 2012; Yap & Gaur, 2016).

Need for Cognition

Need for cognition (NFC), a personality trait which is closely associated with the decision-making process, is defined as "a need to structure relevant situations in a meaningful, integrated ways" and "a need to understand and make reasonable the experimental world" (Cohen, Stotland, & Wolf, 1955, p. 291). More generally, NFC connotes the extent to which people like seeking out cognitive stimulation and handling tasks that require cognitive activities (Cohen, Stotland, & Wolf, 1955; Verplanken, 1993). People with a high level of NFC prefer to involve themselves in abstract and rational thinking activities. Specifically, they are more inclined to actively acquire all kinds of information, scrutinize and reflect on relevant information to make sense of events, enjoy complex problem-solving, and make decisions based on rational considerations. On the contrary, individuals who are low in NFC always avoid engaging in effortful cognitive activities (Cacioppo & Petty, 1982).

NFC is vital to one's motivation for information processing (Zhong, Hardin, & Sun, 2011). And it has been found to positively affect an individual's usage behavior, such as social networking or social media usage (Hughes, Rowe, Batey, & Lee, 2012; Yap & Gaur, 2016; Zhong et al., 2011), smartphone adoption (Cho & Park, 2014), online learning engagement (Arquero, Del Barrio-Garcia, & Romero-Frias, 2017) and so on. It is appropriate to use NFC to explore users' multiple usage behavior in this study because multi-homing behavior is accompanied by diverse and complex information which requires users to think seriously and thoroughly.

RESEARCH MODEL AND HYPOTHESES

Based on the benefit-cost framework, social influence and need for cognition theory, we proposed a model of users' multi-homing intention on accommodation platforms, as shown in Fig.1. In this model, users' perceived benefits are perceived information complementarity and decision complementarity, which are considered as facilitators of multi-homing intention. Perceived costs namely seeking cost and integration cost are negatively related to users' intention to adopt multiple accommodation platforms concurrently. In addition, social influence and need for cognition both drive users' multi-homing intention.

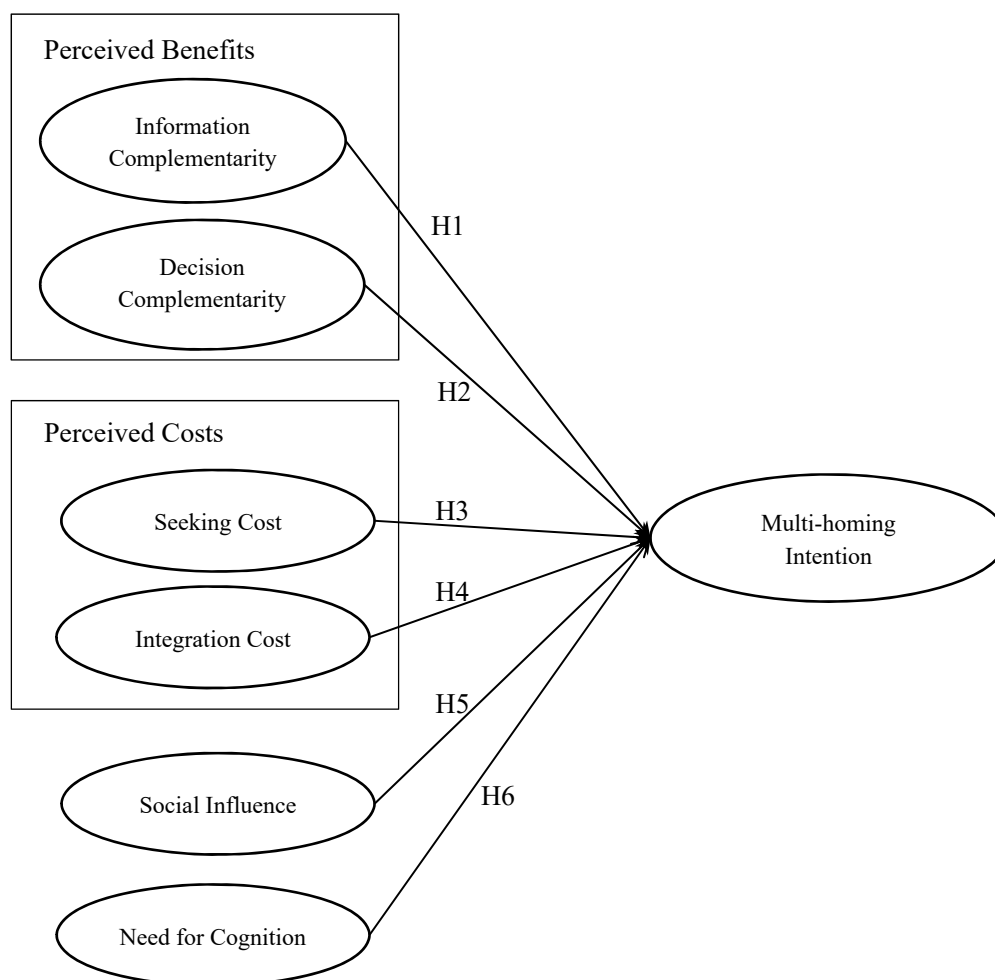


Figure 1: Research Model.

Complementarity and Multi-homing Intention

Information complementarity captures that the heterogeneous information provided by multiple competing accommodation platforms could jointly meet users' various demands (Hu et al., 2017). As discussed earlier, in order to make the right purchase choice, people attempt to obtain comprehensive and multifarious accommodation information. And the accommodation information offered by competing platforms is different because of the differentiated features of each platform (Hwang & Oh, 2009). Thus, people tend to use multiple competing accommodation platforms to satisfy their information demands. It has been pointed out that an increase in users' perception of information complementarity enhances their intention to multi-home on services or platforms (Gu et al., 2016; Hu et al., 2017; Hwang & Oh, 2009).

Besides information complementarity, decision complementarity also reflects the relative benefit of different accommodation platforms' joint usage. Decision complementarity in this study refers to the extent to which users perceive easier and efficient to make choices because of the complementarity of multiple accommodation platforms. The comprehensive information provided by several accommodation platforms offers users a higher utility to make better decisions, thus stimulating users' multi-homing intention. Based on the above arguments, we hypothesize that:

H1: Information complementarity between different accommodation platforms has a positive impact on users' multi-homing intention on accommodation platforms.

H2: Decision complementarity between different accommodation platforms has a positive impact on users' multi-homing intention on accommodation platforms.

Cost and Multi-homing Intention

Seeking cost refers to the time and effort cost for finding satisfactory accommodation information, while integration cost represents the time and effort cost for processing accommodation information (S. M. Tseng & Lee, 2016). Compared with just using one platform, adopting multiple platforms entails that it takes more time and effort for users to search for the appropriate

accommodation. Moreover, before they make a purchase decision, users will spend more time distinguishing the information quality (e.g. whether the housing information is trustworthy and complete) and comparing information between different platforms (e.g. accommodation price, location, household amenities etc.). Previous researches have stated that individuals always want to minimize costs, thus, perceived costs are negatively associated with their behavior intention (Sun, Fang, & Lim, 2014; F. C. Tseng & Teng, 2014; Zhu et al., 2017). It is reasonable to assume that people who perceive seeking cost and integration cost tend to engender more negative feelings toward using multiple accommodation platforms. As the costs increase, users' multi-homing intention on accommodation platforms will decrease. Therefore, we hypothesize that:

H3: Seeking cost is negatively associated with users' multi-homing intention on accommodation platforms.

H4: Integration cost is negatively associated with users' multi-homing intention on accommodation platforms.

Social Influence and Multi-homing Intention

Social influence here describes the extent to which users perceive that important others believe they should use multiple accommodation platforms simultaneously (Venkatesh et al., 2012). Numerous theories (e.g. UTAUT, TRA, TPB) and researches recognize social influence as a crucial facilitator of users' technology usage behavior (Venkatesh et al., 2003; Venkatesh et al., 2012; E. S. T. Wang & Chou, 2016). Especially, Gu et al. (2016) have empirically proved that social influence makes a salient effect on users' intention to utilize multiple SNSs. Based on previous researches, it can be assumed that when people who are important to users recommend adopting multiple accommodation platforms, users will think that it is worth doing and have a stronger intention to multi-home on accommodation platforms. Therefore, we hypothesize that:

H5: Social influence has a positive impact on users' multi-homing intention on accommodation platforms.

Need for Cognition and Multi-homing Intention

The personality trait need for cognition represents one's tendency to seek out cognitive activities and enjoy thinking (Cacioppo & Petty, 1982). NFC is considered to significantly change an individual's behavior in processing information and making a decision (Verplanken, 1993). People with higher degree of NFC really enjoy seeking new information and handling complex tasks (Cacioppo & Petty, 1982; Zhong et al., 2011). Using several accommodation platforms requires users to deal with a variety of accommodation information, and it is a rational decision-making process. Thus high-NFC individuals are more willing to adopt multiple accommodation platforms because they enjoy effortful cognitive activities. Therefore, we hypothesize that:

H6: Need for cognition has a positive impact on users' multi-homing intention on accommodation platforms.

METHOD

Data Collection

In this study, the data were collected by conducting an online survey using sojump.com, which is a popular and professional questionnaire survey platform in China. At the beginning of the questionnaire, we set up screening questions to ensure that participants had used multiple accommodation platforms concurrently. After excluding the unqualified responses in this survey, we obtained 437 valid responses. Among these respondents, 37.54% were male, 62.47% were female. Most of them (59.73%) aged 25-34 years old. In terms of education background demographics, 81.0% of the respondents obtained or are currently acquiring bachelor degree. About travel purposes, 31.35% of the respondents' feedback about their business travel frequency is 2-3 times per year, and more than half of the respondents said that their leisure travel frequency is 2-3 times per year. As for the past usage experience, 40.27% had more than 1 year of online peer-to-peer accommodation platform usage experience. The specific demographics of the respondents are shown in Table 1.

Measurement

Most of the constructs' measures in this study were adapted from extant literature except for decision complementarity and integration cost (see Appendix). Slight wording modifications were applied to fit our research context. All constructs were measured using multi-item perceptual scales. Seven-point Likert scales were used for all items, ranging from "strongly disagree" to "strongly agree". The scales for information complementarity were borrowed from Gu et al. (2016) and Hu et al. (2017). The scales for seeking cost were adapted from Srinivasan and Ratchford (1991). Social influence was measured using four items from Hew, Lee, Ooi, and Wei (2015). The scales for need for cognition were derived from the study of Yap and Gaur (2016). And we used the scale for multi-homing intention developed by Gu et al. (2016).

Due to the lack of decision complementarity and integration cost instruments in prior studies, we developed measurement items according to the structural definitions and the characteristics of the research context. Decision complementarity could be assessed from the decision-making process aspect. Making a decision pays attention to the efficiency and effectiveness of the decision-making forms. Compared with using only one accommodation platform, adopting multiple platforms provides users with more information which could help users make the best decision. Thus, we assessed decision complementarity from the usefulness and effectiveness of making decisions. As for integration cost, prior literature has pointed out that information integration is a stage of individual search and choice behavior (R. X. Wang & Sahin, 2018), thus the cost incurred at the integration stage involves two elements of seeking cost, namely time cost and effort cost. Besides, integration behavior occurs in the process of dealing with information, which requires the rational thinking to evaluate and compare information they have searched for. Therefore, we developed our integration cost instrument from the time and effort aspects of the evaluation and comparison process.

Table 1: Demographics.

Variables	Category	Frequency	Percentage (%)
Gender	Male	164	37.54
	Female	273	62.47
Age	Under 18	3	0.69
	19-24	104	23.80
	25-34	261	59.73
	35-44	65	14.87
	Above 45	4	0.92
Education	Middle school or lower	7	1.60
	Two-year college	42	9.61
	Bachelor	354	81.0
	Master or above	34	7.78
Business travel frequency (per year) (at least one-night stay)	One time and below	58	13.27
	2-3 times	137	31.35
	4-5 times	135	30.89
	More than 5 times	107	24.49
Leisure travel frequency (per year) (at least one-night stay)	One time and below	15	3.43
	2-3 times	228	52.17
	4-5 times	128	29.29
	More than 5 times	66	15.10
Peer-to-peer accommodation platform usage experience	Under 3 months	41	9.38
	3-6 months	79	18.08
	6-12 months	141	32.37
	Above 12 months	176	40.27

DATA ANALYSIS

The partial least squares (PLS) method was chosen to test the research model. PLS is capable of simultaneously estimating the measurement model and the structural model by testing the loadings of indicators on constructs and the causal relationships among constructs (Fornell & Bookstein, 1982). In comparison with covariance-based structural equation modeling (CB-SEM), PLS is more suitable for models with formative constructs, and it has no restriction on normal distribution and sample size (Chin & Newsted, 1997). Based on the above reasons, PLS is appropriate for this study. Thus, SmartPLS was used as the analytic tool to conduct data analysis. In the following section, measurement model and structural model will be examined and reported respectively.

Measurement Model

Reliability and validity of the constructs were assessed in the measurement model. Reliability can be tested by Cronbach's α , Composite Reliability (CR) and average variance extracted (AVE). The criteria of reliability were proposed that the values for Cronbach's α , CR should higher than 0.7, and the critical value for AVE is 0.5 (Fornell & Larcker, 1981). As shown in Table 2, the minimum values of Cronbach's α , CR and AVE were 0.702, 0.820 and 0.534 respectively, which exceeded the recommended threshold value. This result showed that all constructs were reliable.

Table 2: Reliability.

	AVE	CR	Cronbach's α
MHI	0.762	0.906	0.844
ICP	0.613	0.826	0.702
DCP	0.637	0.840	0.717
SC	0.806	0.892	0.767
IC	0.730	0.890	0.817
SIN	0.534	0.820	0.708
NFC	0.552	0.860	0.798

Note: ICP=Information Complementarity; DCP=Decision Complementarity; SC=Seeking Cost; IC=Integration Cost; SIN=Social Influence; NFC=Need for Cognition; MHI=Multi-homing Intention

The validity analysis includes convergent validity and discriminant validity. Convergent validity was tested by checking the item loadings on the respective constructs. According to Table 3, the factor loading of each indicator of a construct is higher than 0.7, suggesting good convergent validity. And each item loading is greater than all of its cross-loadings, satisfying the requirement of discriminant validity. The discriminant validity also can be tested by comparing the correlation coefficient between the latent variables and the square roots of AVE. The square root of AVE of each construct should be higher than the correlation of the specific construct with all the other constructs in the model. From the results of Table 4, all square roots of AVE values exceed the correlations, justifying the good discriminant validity.

Table 3: Cross-loadings.

	MHI	ICP	DCP	SC	IC	SIN	NFC
MHI1	0.914	0.464	0.411	0.164	0.344	0.464	0.331
MHI2	0.841	0.367	0.336	0.050	0.220	0.336	0.230
MHI3	0.861	0.339	0.331	0.101	0.300	0.381	0.311
ICP1	0.390	0.841	0.437	0.288	0.308	0.303	0.332
ICP2	0.320	0.719	0.440	0.213	0.311	0.276	0.377
ICP3	0.347	0.784	0.378	0.270	0.335	0.277	0.356
DCP1	0.332	0.479	0.782	0.137	0.296	0.250	0.303
DCP2	0.275	0.372	0.759	0.080	0.132	0.327	0.368
DCP3	0.376	0.422	0.851	0.148	0.254	0.379	0.380
SC1	0.131	0.315	0.167	0.936	0.538	0.138	0.158
SC2	0.089	0.275	0.103	0.857	0.525	0.125	0.106
IC1	0.296	0.325	0.227	0.479	0.884	0.173	0.163
IC2	0.226	0.364	0.275	0.521	0.796	0.241	0.260
IC3	0.323	0.357	0.256	0.520	0.881	0.210	0.236
SIN1	0.298	0.287	0.308	0.145	0.202	0.756	0.216
SIN2	0.302	0.267	0.325	0.044	0.147	0.748	0.191
SIN3	0.372	0.243	0.259	0.126	0.168	0.759	0.243
SIN4	0.346	0.271	0.283	0.108	0.181	0.704	0.232
NFC1	0.257	0.381	0.386	0.202	0.199	0.203	0.763
NFC2	0.201	0.197	0.310	0.055	0.067	0.250	0.706
NFC3	0.258	0.359	0.341	0.061	0.198	0.276	0.767
NFC4	0.221	0.309	0.280	0.091	0.196	0.210	0.731
NFC5	0.295	0.389	0.305	0.136	0.246	0.201	0.745

Table 4: Correlation Matrix with the Square Root of the AVE in the Diagonal.

	MHI	ICP	DCP	SC	IC	SIN	NFC
MHI	0.873						
ICP	0.452	0.783					
DCP	0.415	0.533	0.798				
SC	0.126	0.331	0.156	0.898			
IC	0.335	0.405	0.292	0.589	0.854		
SIN	0.457	0.365	0.400	0.147	0.239	0.731	
NFC	0.337	0.450	0.437	0.152	0.252	0.305	0.742

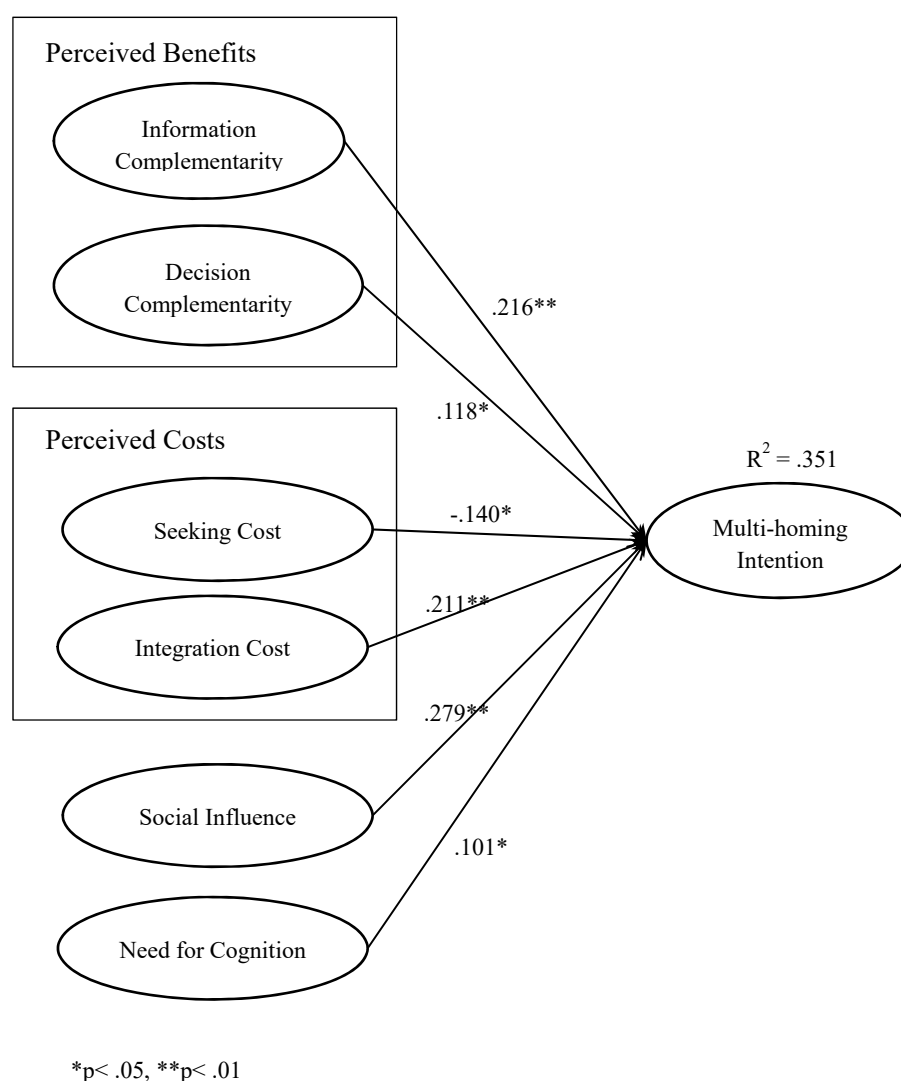


Figure 2: Results of Structural Model.

Structural Model

The PLS results of the structural model are presented in Fig. 2. According to the results, information complementarity has a significant positive effect on multi-homing intention ($\beta=0.216$, $t=3.635$, $p<0.01$), supporting H1. Decision complementarity exerts an important direct effect on multi-homing intention ($\beta=0.118$, $t=1.982$, $p<0.05$), validating H2. Seeking cost is negatively related to multi-homing intention ($\beta=-0.140$, $t=2.399$, $p<0.05$), so H3 is supported. Contrary to our expectation, integration cost has a positive impact on multi-homing intention ($\beta=0.211$, $t=3.308$, $p<0.01$). Although the effect is significant, the impact mechanism is opposite to the assumption, thus H4 is not supported. Social influence is positively associated with multi-homing intention ($\beta=0.279$, $t=5.793$, $p<0.01$), supporting H5. Need for cognition is found to be positively related to multi-homing intention ($\beta=0.101$, $t=1.962$, $p<0.05$), supporting H6. Overall, 35.1% of the variance in users' multi-homing intention on accommodation platforms is explained by information complementarity, decision complementarity, seeking cost, integration cost, social influence and need for cognition.

DISCUSSION

This study explored the factors that influence users' multi-homing intention on accommodation platforms. Findings of this study offered some interesting insights to understand the usage of accommodation platforms.

First, we found that information complementarity and decision complementarity had significant impacts on users' multi-homing intention. Compared with one accommodation platform, a combination of several platforms could offer users additional benefits. As different accommodation platforms provide different accommodation information and services, users can access all kinds of housing information to fully satisfy their diverse travel accommodation needs. With such comprehensive information, users can easily make the best decision. When users perceive above complementarity benefits, they will consider that the adoption of multiple accommodation platforms is worthwhile, thus enhancing their intention to use several platforms concurrently. This result is in line with the study of Gu et al. (2016) which states the important effect of information complementarity on users' multi-homing intention in the context of SNSs.

Second, the results revealed that seeking cost negatively influenced users' multi-homing intention. When users perceive that the time and effort losses induced by using several platforms are too high, they would think that multi-homing behavior makes information searching cumbersome. Thus, the benefits brought by multi-homing behavior became devaluated and they will refuse the simultaneous use of multiple accommodation platforms. This finding is consistent with prior literature which suggests that perceived cost hinders users' adoption and usage behavior (F. C. Tseng & Teng, 2014; Zhu et al., 2017). In addition to seeking cost, we also explored the impact of integration cost on the multi-homing intention. Surprisingly, integration cost has a positive impact on multi-homing intention, which is exactly the opposite of our expectation. A possible explanation could be that for users, the value of information integration is accompanied by integration cost, such that when integration cost is high, the integration value should be high accordingly. In this case, high integration cost may signal high integration value and demonstrate a positive impact on multi-homing intention.

Third, social influence and need for cognition are positively associated with users' multi-homing intention, indicating that an individual's behavior is influenced by important others as well as their own personality traits. If others suggest utilizing multiple accommodation platforms concurrently, they have a great chance of following the recommendations. It echoes with extant studies which show the positive impact of social influence on users' adoption and usage behavior (Gu et al., 2016; So et al., 2018; Venkatesh et al., 2012). Besides, although using multiple platforms requires users to spend more effort searching for and dealing with a variety of accommodation information, users presenting high level of NFC are still willing to adopt several platforms simultaneously as they enjoy performing effortful cognitive activities. It is consistent with NFC literature which contends that NFC positively affect users' technology usage behavior (Cho & Park, 2014; Hughes et al., 2012; Yap & Gaur, 2016).

Theoretical Implications

In investigating the accommodation platform usage behavior, this study can extend previous research in several ways. First, to the best of our knowledge, this study is one of the earliest studies to explore users' multi-homing intention in the context of peer-to-peer accommodation platform (PPAP). Most prior studies on PPAP concentrated on single platform usage behavior, but ignored the multi-homing use behavior of accommodation platforms which is fairly prevalent in our life. The present study fills this void by developing a research model of users' multi-homing intention on accommodation platforms and exploring the underlying mechanism by applying benefit-cost framework (namely complementarity and cost), social influence and need for cognition. It stimulates future studies to further explore the influencing mechanisms of an individual's decision to adopt multiple platforms concurrently.

Second, proposing information complementarity and decision complementarity as key factors promoting users' multi-homing intention is a novel contribution of this study, deepening our understanding of the complementarity among different products and giving a new insight into users' concurrent use of multiple platforms. Based on the characteristics of accommodation platforms multi-homing usage behavior, we subdivide perceived complementarity into information complementarity and decision complementarity. And the results suggest that both two complementarities have significant impacts on users' multi-homing intention. It indicates that in order to complement information and decision-making needs, users would be more proactive in utilizing different platforms. It implies that future studies can further explore the impact of other subdivisions of complementarity on multi-homing behavior.

Third, this study contributes to the understanding of the perceived costs by considering seeking cost and integration cost as important barriers of multi-homing behavior. Corresponding to the above complementarities, this study proposes two components of perceived costs, namely seeking cost and integration cost. The result demonstrates the negative influence of seeking cost on users' multi-homing intention, while the integration cost positively affects multi-homing intention. It indicates that compared with perceived costs which arise in the information integration stage, perceived cost in the information searching process is more likely to hinder users' multi-homing intention. It reminds follow-up research to pay attention to different types of costs when investigating multi-homing behaviors.

Fourth, this study empirically examines the impact of need for cognition on multi-homing intention, introducing a new personality theory into the study of accommodation platforms multi-homing behavior. Our study suggests that users who have a higher degree of need for cognition have a stronger intention to multi-home on accommodation platforms. This finding gives an implication to future researchers that in addition to product-related factors, personality-related factors are also important for multi-homing behavior.

Practical Implications

With the severe competition in the accommodation market, operators are trying to understand what affects users' adoption intention to attract and retain users. This study offers some implications to accommodation market practitioners. First, as people always use several competing platforms concurrently rather than remaining loyal to only one platform, PPAP firms can benefit from coopetition strategy. That is, cooperate with competitors. Firms are suggested to form alliances with competitors in brand promotion and operations to enhance common benefits.

Second, perceiving information complementarity and decision complementarity among different accommodation platforms can evoke users' multi-homing intention. This finding illustrates the importance of complement factors. When operators develop competitive strategies, it would be useful to take complement strategy into account. We recommend that accommodation

platforms could first conduct surveys and interviews to identify users' accommodation needs that have not been fully met, and then provide relevant accommodation information and services based on the survey results that are moderately different from competitors.

Third, high seeking cost decreases users' willingness to adopt other accommodation platforms. In order to reduce the cost that incurred at users' accommodation information searching process, the platform can make efforts to optimize search function and filter function, and strictly control the authenticity of the accommodation information posted on the platform, so that users can quickly and efficiently find the most satisfactory accommodation information.

Fourth, social influence is crucial to users' multi-homing intention. Accommodation platforms can add slight social interaction functions and encourage users to share platform information with their friends through some operational activities, for instance, users can obtain platform credits or coupons by sharing platform accommodation information or inviting their friends to use this platform. Thus, platforms can attract and lock-in more users.

Limitations and Future Research

Despite the valuable findings, this study is subject to certain limitations. First, all the influencing factors identified in this study together explain only 35.1% of the variance in users' multi-homing intention, indicating that there are additional factors to be explored. For instance, as accommodation platform connects online and offline services, trust (includes trust in the platform and trust in the host) and perceived risk (includes perceived online risk and perceived offline risk) might also influence users' multi-homing intention on accommodation platforms. Therefore, future researches can explore the underlying mechanisms to explain why users adopt multiple platforms concurrently based on the characteristics of accommodation platforms. Second, we draw our conclusions based on the self-report results of users' multi-homing intention, but do not assess users' actual behavior. Some studies pointed out that an individual's intention may be inconsistent with his/her behavior as the transformation from intention to action might depend on personality characteristics. Therefore, in order to make the results more convincing, future studies can expand the research by tracking users' actual multi-homing behavior.

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- (*Full reference list is available upon request from the corresponding author.)

APPENDIX

Constructs	Items	Source
Information complementarity	ICP1: Using multiple accommodation platforms is more useful for me to obtain information than using just one single platform. ICP2: There is additional value in using multiple accommodation platforms for my information acquisition compared with using only one of them. ICP3: Using multiple accommodation platforms helps me combine heterogeneous information resources to satisfy my needs.	(Gu et al., 2016; Hu et al., 2017)
Decision complementarity	DCP1: Using multiple accommodation platforms is more useful for me to make better decisions than using just one single platform. DCP2: Using multiple accommodation platforms helps me make decisions more easily than using just one single platform. DCP3: There is additional value in using multiple accommodation platforms for effectively making choices compared with using only one of them.	Self developed
Seeking cost	SC1: Using multiple accommodation platforms makes me spend more time searching information compared with using only one of them. SC2: Using multiple accommodation platforms makes me spend more effort needed to search information compared with using only one of them.	(Srinivasan & Ratchford, 1991)
Integration cost	IC1: I spend more time and effort integrating information given by different accommodation platforms when I use multiple accommodation platforms. IC2: I spend more time and effort distinguishing the quality of platform information when I use multiple accommodation platforms. IC3: I spend more time and effort comparing information between different platforms when I use multiple accommodation platforms.	Self developed
Social influence	SIN1: People who are important to me think that I should use multiple accommodation platforms. SIN2: People who influence my behavior think that I should use multiple accommodation platforms. SIN3: People whose opinions that I value prefer that I use multiple accommodation platforms. SIN4: People around me consider it is appropriate to use multiple accommodation platforms.	(Hew et al., 2015)
Need for cognition	NFC1: Thinking is my idea of fun. NFC2: I like the responsibility of handling a situation that requires a lot of thinking. NFC3: I really enjoy a task that involves coming up with new solutions to problems. NFC4: Learning new ways to think does excite me. NFC5: I like to search for new information.	(Yap & Gaur, 2016)
Multi-homing Intention	MHI1: I intend to use multiple accommodation platforms in the future. MHI2: I predict that I would not use multiple accommodation platforms in the future. MHI3: In the future, I plan to use multiple accommodation platforms.	(Gu et al., 2016)