


The Impact of Information and Communication Technology Factors on the User Intention to Participate in the Sharing Economy

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ABSTRACT

The purpose of this paper is to examine the effects of system and interaction quality, security factors, trust, and perceived ease of use on the user intention to participate in the sharing economy. Information and communications technology (ICT) promotes the development of a sharing economy. Such influential factors include system and interaction quality, security factors, and ease of use of ICT. In this work, a questionnaire survey was administered with 318 sharing economy users with multiple hypotheses investigated via a structural equation model (SEM). Results show that system and interaction qualities have a significant positive impact on the perceived ease of use (PEU). Safety factors and group psychology also have significant positive effects on perceived trust (PT). Altogether, PEU and PT have significant effects on the users' adoption of a sharing economy. The paper contributes to the sharing economy and consumer behaviour literature in a comprehensive perspective.

KEYWORDS

Information and Communication, Intention to Participate, Sharing Economy

1. INTRODUCTION

A “sharing economy” may be conceived as a new economic form that uses network information technology for optimising the allocation of dispersed resources, improving the efficiency via the Internet, and using online platforms (Sutherland & Jarrahi, 2018). The sharing economy, as the rapid development on a global scale, has profoundly changed the form of production, lifestyles, consumption ideas and employment patterns of people, including both workers and consumers.

Today, the sharing economy has emerged due to the combination of technical and socio-economic factors (Guangju, 2016). Information and communications technology (ICT) promotes the development of the sharing economy. Evidently, the factors of ICT deeply influence the user's intention to adopt the sharing economy. Recent developments in ICT can change the way strategic organisational decisions are negotiated and voted upon (Vragov & Kumer, 2013). Among such methods is the application of

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new technologies and ICT, including microfinance and peer-to-peer (P2P) lending, as well as other innovations in society that aid in improving economic growth and development (Kauffman & Riggins, 2012). The influence of the system and interaction quality, security factors and ease of use of ICT on the user's intention to adopt needs to be explored.

The nature of the sharing economy is that underutilized assets or resources, whether monetized or not, could be mutually shared to improve efficiency, sustainability and communal participation; put simply, it can be encapsulated as overcapacity, sharing platform and everyone's participation, but only the number of users of required scale can re-play the value and efficiency of dispersed overcapacity (Luisa et al., 2018). User participation is needed to realize the sharing economy and trust is the basis for the development of the sharing economy. Significant differences are observed in the motivation for the participation of different groups. For example, users and providers have different social backgrounds in the sharing economy, especially in how they are motivated to use the sharing products of different types (Böcker & Meelen, 2017).

Despite the surge in research focus on the sharing economy, very little is known about the user motives for the participation (Tussyadiah & Iis, 2016). Insights on user motivation are instrumental in developing an understanding of the underexplored decision-making processes of users and fostering the general discussion around the sharing economy (Martin, 2016; Piscicelli et al., 2015). A few early scholars on sharing economy have studied drivers for participation (Vaish et al., 2018), for example, claim that economic motivations are dominant in the car sharing platform, Zipcar. Others (Hartl et al., 2016) argue that environmental motivations underlie sharing economy participation, whereas social motivations drive sharing economy participation. Users engage in accommodation sharing as they want to interact with their local hosts (Tussyadiah & Iis, 2016). To date, studies have assumed the existence of the sharing economy but have not distinguished its different forms. The motivations of individuals to share, for instance, a power drill, are different from people sharing an apartment. Researchers (Hellwig et al., 2015) argue that motivations for sharing economy participation can vary according to various sociodemographic groups. People can have other motivations than the providers of goods in the sharing economy given that the activities of providing and using are substantially different (Hamari et al., 2016).

The work reported here attempts to analyze and summarize key factors that affect the participation of users in the sharing economy. Specifically, the critical factors from the Internet platform that drive the participation of users in the sharing economy are studied. The study integrates information sharing theory and technology acceptance model (TAM) to identify the factors that influence the intention of users in the adoption of the sharing economy. In recent years, a variety of well-known theories and models have been employed to explain the relationship between user beliefs, attitudes and behavioural intentions (BI) to use the sharing economy. TAM has been used in several studies in different contexts including mobile wallets (Sarmah et al., 2021), virtual learning environment (Rienties et al., 2016), mobile payments (Bailey et al., 2017), mobile library (Wang et al., 2018). It was initially developed to explore technology acceptance in business and commercial settings, Legris et al. (2003) concluded "TAM is a useful model, but has to be integrated into a broader one which would include variables related to both human and social change processes, and to the adoption of the innovation model" (p. 191). Therefore, while TAM was used as a main framework in this study, suitable human and social construct from information sharing theory such as subjective norm was considered in formulating the integrated model. Therefore, this study contributes to literature by utilizing TAM and information sharing theory to investigate the factors that influence users' intention to use sharing economy.

The rest of this paper is structured as follows. Section 1 introduces the research background and overviews the current research status and critical user intention to participate factors and challenges vis-à-vis the nature of the sharing economy. Next, Section 2 focuses on the theoretical developments, encompassing past research on the technical background of the sharing economy and the research status of user behaviour. Then, Section 3 relates the research model and eight (8) relevant hypotheses. Afterward, Section 4 presents the research methodology and the rationale for applying

the methodology in this study. Section 5 summarizes the statistical data analyses and tabulates the study results. Finally, Section 6 puts forward the concluding remarks and discusses the theoretical and managerial implications of the study, aside from highlighting the potential study limitations and directions for future research.

2. THEORETICAL DEVELOPMENTS

2.1 Research On The Motivation Of User Participation In The Sharing Economy

Many scholars focus on the motivation of users to participate in the sharing economy. Utilitarian value and hedonic value are the basic reasons why users buy goods or services. Utilitarian value refers to the basic functions that products or services provide to consumers. Utilitarian value is related to efficiency, task and economic factors (Voss et al., 2003). Empirical studies show that economic benefits are the factors that affect consumers' motivation and use intention to participate in the sharing economy. Mohlmann (2015) believes that cost savings have a positive impact on consumer satisfaction with using the sharing economy. Stollery and Jun (2017), taking Korean consumers as the research object, find that saving money will increase the perceived value of the sharing economy. Wu et al. (2017) conclude that cost savings will increase Chinese consumers' behaviour intention to use the sharing economic platform. Mahadevan (2018) verifies that sharing concept based on sustainable development has a positive impact on the satisfaction of tourists with shared accommodation.

Hedonic value is the unique consumer emotion of a product or service, and includes pleasure, experience, and stimulation (Voss et al., 2003). Hamari et al. (2016) believes that consumption is not only to solve problems, but also to find pleasure, which is the main reason to explain and predict customers' continuous participation in sharing economic behaviour. So et al. (2018) verifies that pleasure motivation can enhance customers' overall perception and behavioural intention of a sharing economy. Makarand et al. (2017) compare the difference of service experience of tourists in traditional hotels vs. shared lodging via questionnaire, and find that sharing economic platforms can create unique experiences that generate favourable behavioural intentions for users. Jiang and Lau (2021) argue that participating in the sharing economy can create opportunities for meeting new friends and developing meaningful relationships. The above research shows that sharing information has become an important means for individuals to share information with their friends or the public and maintain social connections. At the same time, information sharing platforms also provide technical support for users to acquire social capital. Therefore, based on the information sharing theory, this paper constructs a theoretical framework of the influencing factors of users' adoption of sharing economy platforms.

2.2 User Behaviours In The Sharing Economy

By combination and reorganization, Wang et al. (2016) divided the business model derived from sharing economy into five categories. The model is based on the enterprise's pursuit of target positioning in the profit and/or non-profit market and the difference of market structure, namely, P2P non-profit sharing model. The model is a point-to-point sharing economy in which the two parties exchange property and do not pay compensation to each other. The P2P profit-sharing model is gaining popularity and has become a common model applicable and relevant to the sharing economy. The B2P non-profit sharing model is an enterprise-to-personal model. Under this model, companies typically build their platforms to provide sharing services to individuals. The B2P profit sharing model is a professional platform for which a company implement to provide services to multiple individuals. In the B2B profit sharing model, sharing employees, skills, and spaces between companies is practiced. With the rise of supply chain management (SCM), synergetic and sustainable development and similar theories and practices, sharing economy theory is extended to exchange, production and consumption.

The P2P model is consistent with the purpose of the B2P model to facilitate customers' access to goods and services, but in different ways. P2P mode is personal to the individual, the supply side and

the demand side are independent individuals, the Internet platform does not own a certain commodity or service at all, but simply collects the information of the resource, matches the needs of both the supply and demand sides, and the platform does not have to pay additional costs. Therefore, the P2P model is more competitive in business, but the B2P is more professional and has the advantage of an enterprise integrative approach.

A large proportion of the sharing economy models are based on sharing among consumers. B2B model provides opportunities for enterprises to share resources such as employees, skills, space, and more. This model can simplify the sharing of resources, make them circle faster, deal with market changes quickly with lower cost and more effective way, while also making the operation of enterprises more flexible. Edelman and Luca (2014) investigate the list of Airbnb prices in New York and found that, on average, the rental of non-black landlords in New York is higher than those of black counterparts. Their investigation also proved that the difference is that the photos expose the race. Eral et al. (2016b) study trust and reputation of the sharing economy and report that the customer experience provided by the landlord primarily depends on the characteristics of the product and the characteristics of the landlord. The purchasing behaviour of consumers is together affected by both the product and the landlord. The properties of the landlord are made up of the reputation based on online ratings and the visual and photographic (photo) credibility and charm. Chung and Lee (2016) find that users prefer the enjoyment gained by sharing geotags on social networking sites rather than receiving rewards and helping others from doing so. Schot and Fitzmaurice (2015) study food exchange and indicate that cultural capital is reflected by the product, packaging, and appearance of participants, which affect the participants' selection of exchange objects. The different attitudes of users are also seen in the sharing of merchandise, such as cars, rides, accommodations, tools and meals (Böcker & Meelen, 2017). According to the investigation of (Boateng et al., 2019), the main reason for the utilization of sharing economy platforms by current consumers is that this model provides favourable pricing, community consciousness, great convenience and high quality.

2.3 Research On The Influencing Factors Of User Participation In The Sharing Economy

The sharing economy is a new concept of consumption that is now being widely accepted by users. Investigators have conducted studies on the willingness of users to participate in the sharing economy. In the Airbnb housing sharing economy, for example, the credibility of the photo information given by the landlord (Eral et al., 2016a) and the perceived risk (Lauterbach et al., 2009) are key factors that influence the participation of users. Trust is considered the primary influence factor of the participating users in the sharing economy (Mcevely et al., 2003). When the transaction of the share economy occurs at a low trust level between suppliers and buyers, the participation of the users of higher qualification decreases proportionally (Akerlof, 1970).

Over time, the Internet platform has to establish a reputation mechanism (Resnick & Zeckhauser, 2002) and a third-party review system (Malhotra & Alstyn, 2014) to enhance the trust and participation of users. Perfecting service data is another important means to promote users to participate in the sharing economy repeatedly (Mohlmann, 2015). With the increase of the participation of users, satisfaction has become one of the key elements of the users' selection of information service (Zhou & Yan, 2014). Other studies have shown that the perceived pressure and the reference group, which has an important impact on individuals, can substantially affect the specific behavioural selection of consumers (Ajzen & Madden, 1986). In addition, the subjective norm has a positive effect on the behavioural intention of users' information (Li et al., 2015).

As well, the motivation of users to participate in sharing economy includes sustainability, enjoyment of activities and economic benefits (Hamari et al., 2016). Users of unique consumption preferences and high cultural capital also promote the consumption of sharing economy (Schot & Fitzmaurice, 2015). The aforementioned studies concerning the motivation of users to participate in the sharing economy have already formed a part of the theoretical results. However, most studies

have described the two sides in the sharing economy as the individuals of direct transactions but have not included the Internet platform. Transactions in the sharing economy cannot be completed without this platform. Thus, The research model takes the system security, system quality, system feedback and other factors of the Internet platform as independent variables, and users' intention to participate in the sharing economy as the dependent variable.

Table 1. Factors of customer adoption of sharing economy from prior research

Factor	Description	Researcher
Reliance	Credit supervision and management Trust	Wu & Fang (2016), Zhang (2016) Xie & Shi (2016), Qi & Zhang (2016), Yang (2016), Yang et al. (2016), Romani & Tondini (2005)
Allocation of resource	Sustainable development	Chen (2017), Martin (2016), Cheng (2016), Martin et al. (2015); Liu & Yan (2017), Zuo (2016), Li & Zhang (2017), Qi & Zhang (2016), Ding (2016), Daunoriene et al. (2015)
Business model	O2O Internet Plus	Zhang (2016), Liu & Yan (2017), Zheng (2016), Shi et al. (2017), Henten & Windekilde (2016), Cheng (2016), Li & Zhang (2017), Chen (2017)
Social relation	Cooperation Social networking services Social platform media	Yu & Fan (2015), Xu et al. (2016), Richardson (2015), Chung & Lee (2016), Song & Wang (2016)
Cost	Price Transaction cost	Li & Zhang (2017), Shi et al. (2017), Henten & Windekilde (2016), Wang & Nicolau (2016)
Platform	Airbnb Uber	Martin (2016), Liu & Yan (2017), Ert et al. (2016)
Benefit	Safety benefits Relational benefits Bonus share	Yang et al. (2016), Romani & Tondini (2005)
Society	Social demand Social innovation Personalization and customization service External environment	Martin (2016), Martin et al. (2015) Yang (2016), Cheng (2016)
Technology	Internet technology Innovative technology Third-party payment technology Cloud computing	Zheng (2016), Yang (2016)
Consumption	Consumption concept	Li & Zhang (2017), Qi & Zhang (2016), Yang (2016)

As shown in **Table 1**, different scholars have studied the sharing economy from the aspects of connotation, impact, development prospect and barriers, and are achieving interesting results. Nonetheless, the sharing economy is a new format in this world, and its gradual development gives rise to new problems. As such, research attention is urgently needed on the impact of a sharing economy platform on innovation, competition, consumers and traditional formats. The sharing economy is directly related to the advantages of maximizing shared resources, improving efficiency, and saving energy.

3. RESEARCH MODEL & HYPOTHESES

3.1 Model Building

The diversity, high efficiency, high valuation and high retention of the sharing economy are necessary factors to meet the transaction needs of users. The research model is based on TAM and combined with the information sharing characteristics of social media, it provide a basis for studying the influencing factors of users' adoption of the sharing economy.

In 1986, Davis proposed TAM, which contains perceived ease of use (PEU) and usefulness, adoption attitude, behavioural intention and the behaviours of users and other variables (F.D.Davis, 1986). TAM focuses on the tendency of the attitude of users in using a system or service and believes that the PEU and usefulness are two critical factors affecting personal attitudes in the adoption of the system. Adoption attitude and the perceived usefulness (PU) jointly affect the behavioural intention, which directly impacts on the actual use of the system by users (Mark et al., 2007). TAM is applied in analyzing key factors affecting the use of a sharing economy platform and exploring a variety of problems encountered by the users in accepting and using the information service in the respective sharing economy. The application of TAM is helpful in discovering and addressing the disadvantages of the sharing economy in the development process and to improve market efficiency.

TAM does not include the users, system construction, quality of service and safety and others into the study. Hence, many scholars have conducted a series of TAM improvements according to a specific mission environment, including perceived inspiration, entertainment and interaction as well as other factors. Other scholars have proposed a conceptual model based on somewhat similar information, which takes the emergence of an application field as an example for the study of information determinants, such as the microblogging push model based on a heuristic system (Liu et al., 2012). With the development of advanced IT, user groups are becoming more and more diversified and personalized, so it is necessary to explore the acceptance behaviour of users to new things according to changes with new technology and the characteristics of users. TAM model is widely used in the study of user willingness in the fields of electronic commerce and network user behaviour; over the years, the applicability and reliability of the model have been widely affirmed. Briefly, the problem of user adoption behaviour of sharing economy belongs to the research field of IT adoption, and therefore, it is more helpful to further explore the main factors affecting user adoption of the sharing economy.

In this paper, the PU of weak connections with actual information sharing in TAM is removed. Perceived trust (PT) is introduced in the perceived inspiration, and the factors that affect using of a sharing economy are studied from perceived trust, inspiration, and ease of use. On the basis of synthesizing the existing research on the sharing economy, this study analyze the impact of system support, interaction types, security guarantees on perceived trust, perceived incentives, and perceived ease of use, and build a technology acceptance model for users in the sharing economy.

3.2 Hypothetical Relationships

Based on the analysis of the research literature on the sharing economy, user consumption preferences and purchasing behaviour, this paper summarizes the factors that affect users' adoption of the sharing economy into eight aspects.

The Information System Success Model (ISSM) proposed by (Delone & Mclean, 2003) is a classic model that tests the success of an IS. Scholars have combined the model with TAM to find that both system and information quality can significantly affect the PU and PEU. The clear and well-sorted system is popular among users and is easier to use compared with other systems (Venkatesh & Bala, 2008). Other systems provide specific recommendation interfaces for consumer interaction. When the consumer is dissatisfied with the recommended results, the recommended system allows consumers to modify the preferences at any time and update the recommended commodities in a dynamic mode; benign interaction can improve the evaluation of users on the system (Pereira, 2001;

Xiao & Benbasat, 2007). Based on the research results, the system quality is used as an indicator to measure the user's PEU, and the following assumptions are proposed.

H1: System quality (SQ) has a positive impact on the PEU of users.

Interaction quality and trust are critical factors influencing the adoption of AI-based systems. The impacts of traditional quality factors (i.e. information quality and system quality) occur through interaction quality in the context of AI-based systems (Lee et al., 2021). Frey and Lüthje (2011) confirm that interaction quality is positively related to the innovativeness of virtual communities. As regards the antecedents of interaction quality, the analysis indicates that trust is a key prerequisite to co-operative behaviour. Interaction quality may be crucial in understanding why past research is equivocal in support of the development maxim that user involvement is crucial to the success of an information system project. Integrating all of the above rationalization, additional hypotheses for this study are now being put forward:

H2: Interaction quality (IQ) has a positive impact on the PEU of users.

The sharing economy is a new business model of e-commerce that stimulates new thinking in different ways. However, security and privacy are the most critical problems in the sharing economy (Chang & Wang, 2018). Chen (2013) indicate that trust in manufacturers and trust in retailers are directly positively related to food safety perceptions. Based on the conclusion of these past research, safety factor is used as an indicators to measure perceived trust (PT). The following additional hypotheses are therefore advanced:

H3: Safety factor has a positive impact on the PT of users.

Kim et al. (2010) use 219 Korean data elements in studying the relationship between perceived security risks and trust of consumers in electronic payment systems. Trust is a decisive factor of the PEU, which can affect the attitudes and intentions of use. Trust-free systems are hardly transferable to sharing economy interactions and crucially depend on the development of trusted interfaces for blockchain-based sharing economy ecosystems (Hawlitschek et al., 2018). Based on the conclusion of these past research, PEU is used as the indicators for measuring perceived trust (PT). The following additional hypotheses are therefore advanced:

H4: PEU has a positive impact on the PT of users.

Huber et al. (2018) argue that in an environment full of uncertainties, social norms have a strong effect, and the judgments of others are valuable inspirations that help users to make the right judgments as much as possible. Lin et al. (2005) indicate that users are affected by others when making decisions, and such kind of effect have a positive correlation with uncertainty. The higher the uncertainty is, the more evident herd behaviour will be. Based on the conclusion of these past research, group psychology is used as an indicators for measuring perceived trust (PT). The following additional hypotheses are therefore advanced:

H5: Group psychology has a positive impact on the PT of users.

Vahlne and Johanson (2021) points out that trust is one of the most effective ways to lower social complexity and is a mechanism that can lower the social complexity risk. Trust has been proven to

be an important factor affecting users' adoption of new technology in many studies. Wang et al. (2006) study consumers' acceptance of mobile services and report that trust has a significant impact on PU and use intention. Lu et al. (2008) investigate mobile commerce (m-commerce) and found that trust has a significant impact on PU and PEU. According to Gefen (2000), trust can effectively reduce the complexity of users in the decision-making process. The consumer can reduce the scope of management under effective control, thereby predicting whether the transaction object can make the behaviour conducive to both sides. Trust can increase the PEU and PU, and trust can reduce the efforts of consumers in understanding, monitoring and controlling the transaction status, and promote the smooth development of transaction. Kim et al. (2009) find that online trust and perceived risk have significant impact on online purchasing decisions and intentions of consumers and the trust tendency, privacy concerns and security awareness of consumers can affect trust. Das and Tang (2004) argue that the relationship between trust and perceived risk is parallel and interrelated. Trust and perceived risk jointly affect the behaviour of consumers. An increase in trust decreases perceived risk accordingly. Strong support is found for a positive link between education and trust at the individual level when the quality of institutions is high. The effect of one's education on trust is negligible when the quality of institutions is low (Charron & Rothstein, 2016).

Accordingly, PT is used as the indicators for measuring the users' adoption of sharing economy and put forward the following hypotheses:

H6: PT has a positive impact on the users' adoption of sharing economy.

TAM argues that the PEU affects PU, and both affect the intention of users for using new technologies, thereby affecting their usage behaviour (Davis, 1989). Guriting and Oly Ndubisi (2006) indicate that perceived usefulness and perceived ease of use are strong determinants of behaviour intention to adopt online banking. Different factors determine passengers' willingness and adoption of self-service technology. perceived ease of use and perceived usefulness significantly affect passenger adoption and behaviour of self-service technology in airports (Taufik & Hanafiah, 2019). Perceived usefulness ($\beta = 0.65$, $p < 0.01$) and perceived ease of use ($\beta = 0.14$, $p < 0.05$) were positively related to continuance intention to use e-government and able to explain a total of 56% variance (Hamid et al., 2016a). Accordingly, PEU is used as the indicators for measuring the users' adoption of sharing economy and put forward the following hypotheses:

H7: PEU has a positive impact on the users' adoption of sharing economy.

Attitude is an important variable affecting behaviours. Perceived system quality (SQ) reflects the users' overall awareness of information, which can have a direct impact on the use of information and is also the subject of this study. Zhu et al. (2017) indicate that self-efficacy is a fundamental factor that has a direct effect on consumers' perceptions of value and an indirect effect on behaviour intentions. Chuah et al. (2021) indicate that motivations affect a firm's intention to adopt the sharing economy indirectly through top management support, whereas constraints affect a firm's adoption intention directly. Employment status, annual income, attitude towards benefits of shared mobility, the capability to access shared mobility, and reasons for shared mobility have a positive correlation to the possibility of shared mobility use (Jie et al., 2021). Accordingly, attitude is used as the indicators for measuring the users' adoption of sharing economy and put forward the following hypotheses:

H8: Attitude has a positive impact on the users' adoption of sharing economy.

4. STUDY METHODOLOGY

4.1 Design Of Investigation Questionnaire

After reviewing the extant literature, specifically on results of studies concerning sharing economy and characteristics of users, this paper systematically classified and sorted out the influencing factors affecting users' participation in a sharing economy. This study based on the conclusions of theoretical analysis (hypothesis model) and adopted the closed-item style in designing specific questionnaire items.

The total questionnaire comprises 25 items for 8 constructs. To measure each construct, questions were compiled and adapted from validated instruments used in prior connected research. These items, initially developed in English, have been subsequently translated into Chinese. One professional translator had performed a back-translation to ensure that the original translation was accurate. System quality (SQ) has been adopted from the (Mohd Salleh et al., 2016) scale; Interactive quality (IQ) as measured by (Kim et al., 2015) has been incorporated and attitudes factors (AF) as measured by using the scale described by (Can & Kaya, 2016). Security factors (SF) has been adopted based on (Nilashi et al., 2015); perceived trust (PT) from (Rasheed & Abadi, 2014); perceived ease of use (PEU) from (Hamid et al., 2016b); conformity influence (CI) as measured by (Chaouali et al., 2016); and intention to use (ITU) from (Hajli, 2015) scale have all been incorporated.

To verify the authenticity of those variables in the theoretical model, face-to-face pre-investigation work is conducted through the interviewed users before the release of the questionnaire. The questionnaire was revised according to the actual operation and expert opinions, to ensure that the content of the questionnaire was designed reasonably, and a research survey scale was formed, and each variable factor was clearly expressed. The final version of the formal investigation questionnaire is composed of two parts. The first part relates to capturing the demographic characteristics of samples, including gender, age, education level and two other subjects. The second part relates to the analysis of the influencing factors affecting the users' adoption of the sharing economy, as linked to the eight variables.

The core variables are the perceived usefulness and ease of use, quality of information and system and adoption attitude. The questionnaire uses the items designed by Davis and has been modified in accordance with the characteristics of users. Furthermore, the system support, prospective earnings, and intention of use have four options. The variables are measured on a 5-point Likert scale (1 - completely disagree and 5 - fully agree). The interviewees are asked to select the suitable option according to their personal subjective feelings.

This study explores the motivations to participate in the sharing economy based on an online stated preference survey administered in Shanghai in 2017. Shanghai is selected as a pilot area for exploring motivations to share as it is a forerunner in the sharing economy. Moreover, local politicians and stakeholders promote initiatives in sharing economy locally, nationally, and internationally under the label of Sharing City. Under the wave of the sharing economy, Shanghai has become the forefront of innovation, and the sharing economy has exploded with huge commercial potential in Shanghai (Yu, 2019). Some users who have purchased products or services through the sharing economic platform were invited to participate in the survey. According to the unified standards and requirements, the questionnaires are mainly distributed online through WJX data collection platform. WJX is an online survey platform located in Changsha, China. Depending on the questionnaire, WJX provides powerful data collection, storage and analysis tools and deeply digs the value of data. At present, 71.61 million questionnaires have been distributed, and more than 5.542 billion questionnaires have been recovered. The WJX platform have checked the ethical clearance of the questionnaire before send the formal questionnaire. After invalid questionnaires have been removed, 318 valid questionnaires were obtained. The questionnaire includes 21 questions, and 318 questionnaires are more than 10 times of 21, which is a relatively large sample and can meet the analysis requirements of the whole.

Table 2 presents the statistics of the characteristics of samples being studied. The respondents comprise 158 males and 160 females. Approximately 71.4% of users are under the age of 35, 78.0%

of users possess college or higher educational attainment, 86% of users engage in brain work, and 48.1% of users participate in the sharing economy three times each week on average.

Table 2. Demographic information of respondents

Demographics	Category	Frequency	%
Gender	Male	158	49.7%
	Female	160	50.3%
Age	19–25	42	13.2%
	26–35	185	58.2%
	36–45	62	19.5%
	Above 45	29	9.1%
Education level	Junior school or less	2	3.8%
	High school/special school/vocational school	12	17.6%
	Junior college	56	0.6%
	Undergraduate	222	69.8%
	University degree or above	26	8.2%
Employment	Institution staff and public servant	69	21.7%
	Enterprise technical personnel and top manager	174	54.8%
	Teacher	32	10.1%
	Student	10	3.1%
	Housewife	2	0.6%
	Self-employment	23	7.2%
	Others	8	2.5%
Frequency of using the sharing economy platforms	1–2	165	42.1%
	3–4	134	4.4%
	5–6	14	51.9%
	7 and above	5	1.6%

Note: $n = 318$

4.2 Measures

To guarantee the credibility and validity of the study results, it is necessary to test the reliability and validity of the questionnaire scale. Credibility is known as reliability, which is used for measuring the credibility of the questionnaire. Stability and reliability are concerned with the results of the questionnaire, and the credibility coefficient is an important technical indicator for measuring the result of the questionnaire.

In this study, Cronbach α value is used to measure the credibility of the questionnaire for inspecting the α credibility over various variables (Chung, 2014). A questionnaire with the credibility coefficient above 0.9 has excellent credibility, above 0.8 has good credibility, and above 0.7 has average credibility. However, the questionnaire with the credibility coefficient below 0.7 must be redesigned. Through

calculations, Cronbach α values in this study are all above 0.7, indicating that the questionnaire has high stability and reliability (Bagozzi & Yi, 1988).

Validity refers to the validity and accuracy of the content and structure of the questionnaire. This paper designs the variables in the research model on the basis of referring to a large number of literatures, which has good content validity. SPSS software has been employed for testing the validity of the structure of the scale. Before factor analysis, KMO (Kaiser-Meyer-Olkin) measurements and Bartlett's Test of Sphericity were performed. When the value of KMO is greater than 0.5, the data are suitable for factor analysis (Lu & Su, 2009). The KMO of this study is 0.911, which is suitable for factor analysis. The scale is therefore valid, and the problem items corresponding to the variable do not need to be adjusted.

Table 3. Results of confirmatory factor analysis

Construct	Items	Factor Loading ^a	Cronbach's α	AVE	CR
System quality (SQ)	SQ1	0.704	0.76	0.54	0.77
	SQ2	0.746			
	SQ3	0.735			
Interactive quality (IQ)	IQ1	0.754	0.84	0.58	0.81
	IQ2	0.736			
	IQ3	0.791			
Attitude factors (AF)	AF1	0.760	0.78	0.55	0.79
	AF2	0.718			
	AF3	0.733			
Security factors (SF)	SF1	0.755	0.76	0.55	0.79
	SF2	0.733			
	SF3	0.745			
Perceived trust (PT)	PT1	0.779	0.86	0.56	0.79
	PT2	0.710			
	PT3	0.747			
Perceived ease of use (PEU)	PE1	0.724	0.72	0.58	0.81
	PE2	0.771			
	PE3	0.793			
Conformity influence (CI)	CI1	0.818	0.71	0.62	0.83
	CI2	0.784			
	CI3	0.757			
Intention to use (ITU)	IU1	0.787	0.71	0.51	0.81
	IU2	0.675			
	IU3	0.665			
	IU4	0.721			

Note: ^aAll standardised factor loadings were significant at $p < 0.001$

Table 3 shows that the factor loading of each observation variable is between 0.665 and 0.818, which are greater than 0.50 and less than 0.95. Hence, the basic adaptation index of the scale has been ideal, which indicates construct validity. The combined values of credibility of latent variables are between 0.71 and 0.86, which are larger than the evaluation standard value of 0.60. Additionally, this study provides average variance extracted (AVE) and composite reliability (CR) to measure the construct validity. The AVE of all the constructs range from 0.51 to 0.62, which is higher than the evaluation standard value of 0.50. The CR values range from 0.77 to 0.83 (above 0.7). Therefore, the constructs show high convergence validity and reliability, which indicate that the questionnaire scale has higher credibility.

Discriminate validity of latent variable is the low correlation or significant difference of observed variables of different latent variables. In this study, discriminant validity uses the AVE of each latent variable and the square of the correlation coefficient between the latent and the other latent variables for testing (Zhang, 2010). Table 4 shows the discriminant validity of latent variables.

Table 4. Results of discriminant validity analysis

Construct	SQ	IQ	AF	SF	PT	PE	CI	IU
SQ	0.735							
IQ	0.034	0.762						
AF	0.028	0.029	0.742					
SF	0.02	0.018	0.013	0.742				
PT	0.026	0.025	0.017	0.026	0.748			
PE	0.025	0.025	0.025	0.01	0.02	0.762		
CI	0.017	0.028	0.02	0.012	0.024	0.02	0.787	
IU	0.018	0.024	0.027	0.008	0.015	0.021	0.011	0.714
<p>Notes: SQ, System Quality; IQ, Interactive Quality; AF, Attitude Factors; SF, Security Factors; PT, Perceived Trust; PE, Perceived ease of use; CI, Conformity Influence; IU, Intention to use. Figures in diagonal are square root of the AVEs, and off-diagonal elements are correlations of constructs</p>								

The values along the diagonal of Table 4 indicates the square root of the AVE of each latent variable rather than the square of the correlation coefficient between latent variables not on the diagonal. The values on all diagonals are larger than the values not on the diagonals, indicating that the discriminant validity of each latent variable in the model is good. In summary, the overall questionnaire scale of this study has good credibility and discriminant validity, laying the foundation for further in-depth analysis.

5. DATA ANALYSIS AND RESULTS

After confirming the reliability and validity of the measurement model, this paper uses Amos21.0 software to carry out structural equation model analysis on the survey data, and uses the maximum likelihood estimation algorithm to verify the hypothesis proposed in the theoretical model.

5.1 Rationality Test Of Participating In The Estimation

Before estimating the overall fitness of the model, it's necessary to check whether the model violated the estimates and the rationality of the parameter estimates. In the model designed here,

all standardized parameter estimates are not higher than 0.95. The variances of measurement errors are between 0.21 and 4.3. No negative variances were found, and the correlation coefficient of the standardized estimates of the latent variable covariance range between 0.37 and 0.64 and are all less than 1. The rationality of the parameter estimates shows that the covariance matrix or the correlation matrix is a positive definite matrix. To sum up, the results of model estimates indicate no violation of the estimates, and thus, the overall fitness test of the model can be made.

5.2 Overall Fitness Test Of The Model

The overall model fitness evaluation indicator classification method referred in this paper (Richins, 1987) divides the overall model fitness evaluation indicators into three categories, namely, absolute fitness, value-added and simple adaptability (see Table 5 for the overall model fitness test statistics of this paper).

The degree of freedom ratio (CMIN/DF) of chi-square (χ^2) is 1.761, which is less than 3. Hence, the presumptive model is compatible with the actual sample data. The chi-square value and degree of freedom value are easily affected by the size of the samples. Therefore, in determining the degree of model fitness, it is necessary to refer to other fitness indicators for comprehensive judgment (Wheaton, 1987). Table 5 shows that the RMSEA of the model to be 0.49, which is less than 0.05. The GFI value is 0.902, and the CFI value is 0.918. The TLI and IFI values are 0.904 and 0.92, respectively, and are greater than 0.9.

Altogether, the overall model adaptability indicators reach the adaptation standard. Overall, the proposed model is in good agreement with the actual observed data, indicating that the SEM has external quality.

Table 5. Measures of the model fit

Fit index	χ^2/df	RMSEA	GFI	CFI	TLI	IFI
Recommended value	<3	<0.05	>0.9	>0.9	>0.9	>0.9
Model value	1.761	0.049	0.902	0.918	0.904	0.920

Source: According to Bentler & Bonett (1980)

5.3 Hypothesis Test Of The Study

Table 6 presents the results estimated by the SEM. Except for $H4$ and $H8$, the other hypotheses pass the significance test and are consistent with the theoretical analysis and expectations. In term of $H1$, the system quality (SQ) of the sharing economy platform has a low impact on PEU. For $H2$, the interaction quality (IQ) between users and the sharing economy platform has the greatest impact on PEU. The estimated result of the SEM shows that the normalized path coefficients of the system quality of sharing economy and the interaction quality to the PEU are 0.220 and 0.764, respectively, reaching the significant levels of 0.05 and 0.0001, respectively. The assumptions of ($H1$, $\beta=0.220$, $p<0.05$) and ($H2$, $\beta=0.764$, $p<0.001$) are validated. System and IQ has a positive effect on the PEU.

In term of $H3$, the safety factors (SF) of the system transaction had the greatest impact on PT, whereas $H5$ shows that group psychology (CI) has the lowest impact on PT. The normalised path coefficients of the safety factor and group psychology to the perceived trust were 0.702 and 0.269, respectively, reaching the significant levels of 0.001 and 0.05, respectively. The assumptions of ($H3$, $\beta=0.702$, $p<0.001$) and ($H5$, $\beta=0.269$, $p<0.05$) were validated. SF and CI have a positive effect on PT.

As for $H6$ and $H7$, PEU and PT have the greatest and the lowest impact on users' adoption of sharing economy, respectively. The normalized path coefficients of PT and PEU on one's willingness

Table 6. Summary of hypothesis tests

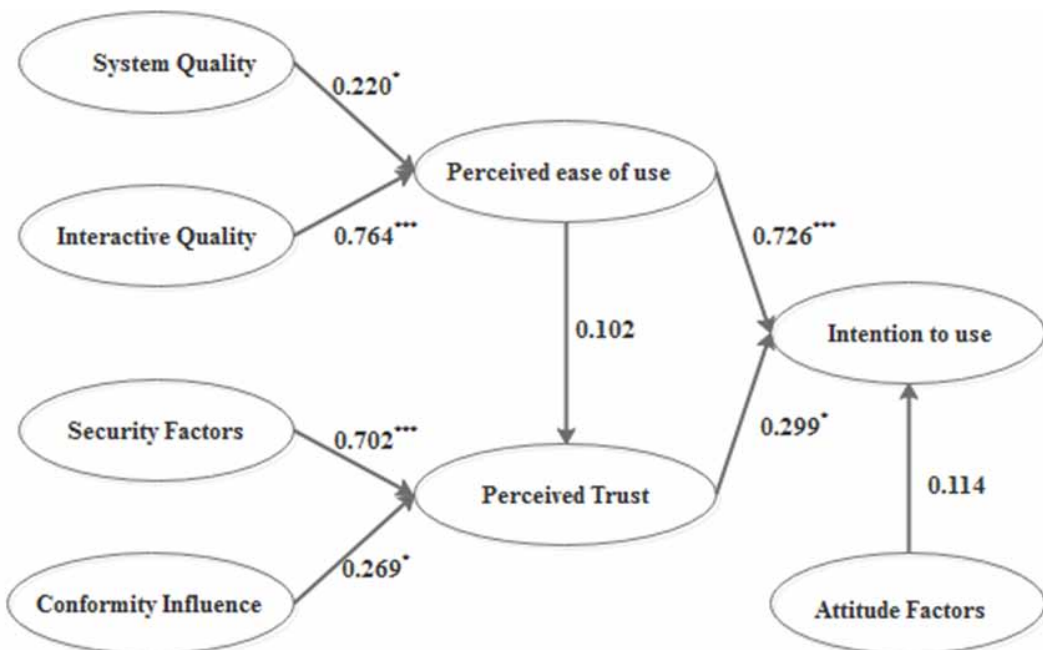
Hypotheses	Standardised Coefficient	S.E.	C.R.	Supported
<i>H1: SQ@PE</i>	0.220*	0.186	1.182	Yes
<i>H2: IQ@PE</i>	0.764***	0.193	3.963	Yes
<i>H3: SF@PT</i>	0.702***	0.151	4.637	Yes
<i>H4: PE@PT</i>	0.102	0.137	0.742	No
<i>H5: CI@PT</i>	0.269*	0.136	1.978	Yes
<i>H6: PT@IU</i>	0.299*	0.113	2.640	Yes
<i>H7: PEU@IU</i>	0.726*	0.247	4.786	Yes
<i>H8: AF@IU</i>	0.114	0.133	0.854	No

Note: * $p < 0.05$, *** $p < 0.001$

to use are 0.299 and 0.726, respectively, reaching the significant levels of 0.05. The assumptions of (*H6*, $\beta = 0.299$, $p < 0.05$) and (*H7*, $\beta = 0.726$, $p < 0.05$) have been validated. PEU and PT have a positive effect on willingness to use.

Finally, both *H4* and *H8* have not been validated; that is, in term of *H8*, AF do not have any impact on the users' adoption of sharing economy. PEU also does not produce a positive effect on PT and Attitude factors (AF) do not have any positive effect on one's willingness to use.

Figure 1. Results of the proposed model



6. DISCUSSION AND CONCLUSION

The objective of this study has been to investigate various influencing factors on users' behavioural intention and use of the sharing economy. The TAM model has been applied and further extended with the addition of constructs for trust and security risk to explore the adoption and use of sharing economy in China.

6.1 Discussion of Findings

Data from 318 investigation questionnaires have been cumulated in this work with the use of SEM to statistically sort out the main factors influencing the users' adoption of the sharing economy. Our findings offer an insight into a core process of factors influencing users' intention to use sharing economy. we constructed a framework of system quality, interactive quality, security, conformity influence, perceived ease of use and intention to use in sharing economy context. The empirical results show that interaction quality and efficiency of users and the sharing economy platform are the most important factors affecting the perceived ease of use.

In addition, system quality of the sharing economy platform has a positive effect on PEU. This finding is in line with system quality studies of (Mohd Salleh et al., 2016). The safety factor and the group psychology are the important factors affecting the perceived trust. Our findings are also consistent with results of (Nilashi et al., 2015) in the security and trust.

Finally, the PEU and PT both positively affect the willingness of participants to use sharing platforms. This finding is inadvertently consistent with the finding in sharing economy ease to use of (Mcevely et al., 2003).

6.2 Practical Implications

In view of the results of the various hypothesis testing conducted in this reported study, the series of very compelling findings provided both theoretical and managerial insights into the sharing economy and its use among studied participants in China.

Among key factors that affected PEU, the quality of interaction between users and the sharing economy platform is the most sensitive in determining its future success(Cheng, 2021). This finding shows that the users want to obtain the latest information while sharing their experiences and feelings, hoping that their transaction problems encountered may be answered and/or will be responded in a timely manner. Hence, the process of development of the sharing economy should strengthen communications with users, affording the release and update on the relevant information of commodity or services quickly, paying serious attention to the complaints and suggestions raised by users(Baker et al., 2021; Carrigan et al., 2020). As well, there is need for the management behind these platforms to show concern about the psychological needs of users who are sharing their consumption experiences and provide additional avenues within these platforms for users to share, relate and exchange information.

System quality (SQ) is another factor that affected PEU. In other words, users are willing to use the sharing economy platform if they are able or being enabled to execute simple operations to support their needs to identify the required commodity or service quickly(Meijerink & Schoenmakers, 2021), allowing position services using a variety of modes and providing a variety of payment methods. Hence, the optimal sharing economy requires cross-platform information retrieval servicing and convenient payment options vis-à-vis the assurance of its safe use and secured transactions.

Additionally, group psychology affects PT. The experiences (specifically, online transactional journeys) of consumption as shared by different and multiple users will have a significant impact in enchainning the PT of other users(C. Wang et al., 2020). The users take the initiative to refer to the behaviours of other consumers and make the behaviour or response of consumption compliant to the majority of known or documented consumers(X. Wang et al., 2020). Hence, group psychology

increases the publicity of the sharing economy, pays attention to the reviews of majority of users, eliminates adverse effects in a timely manner and enhances the satisfaction of participating users.

6.3 Theoretical implications

This study makes several theoretical contributions on promoting the future development of the sharing economy. Our research extended the scope of ATM model in the sharing economy. we examined the influencing mechanisms among system quality, interactive quality, security, conformity influence, perceived ease of use and intention to use in the sharing economy. One key factors that affect the intention of use the sharing economy, the PEU stands out(Cheng, 2021). Users are not willing to spend time to learn how to use the sharing economy platform if it takes away their anticipated conveniences, for example, elderly people often find it difficult to use the sharing economy platform due to their lack of positive online experiences. Studying sharing economy needs to analyse the behaviours and characteristics of users, explore the demands of users and provide more convenient and efficient products and services. PT has a great impact on the users' adoption of sharing economy(Chua et al., 2020; Lee et al., 2018). Apart from trust, safety, commitment, and perceived risk are the critical factors affecting the users' adoption of the sharing economy, and PT has a positive impact on the participation of users in the sharing economy.

Again, among the factors that affected perceived trust (PT), transaction safety is the most critical. Users show genuine concern over the safety of transactions in the case of information asymmetry and hope to obtain safe services and products. The sharing economy platform can operate in compliance with existing legal and management systems(Cheng, 2021). Therefore, with the rapid development of the sharing economy, enterprises need to improve the awareness of self-discipline to provide efficient services for users(Yasir & Majid, 2017). The government should also speed up the construction of corresponding legal systems to protect the interests of consumers and enhance the reliability of users on the sharing eco-system(s).

Altogether, the credit construction of the sharing economy platform needs to be strengthened, and the transactions of users must be safe, and not to be deterred from all technical and management aspects. Accordingly, this study expands the understanding on the internal mechanism of trust on users' behavioural intention and use of the sharing economy. which will also add values to future work on the mechanism of sharing economy .

7. LIMITATIONS & FUTURE RESEARCH DIRECTIONS

In identifying key factors affecting the users' adoption of the sharing economy, most studies have focussed on perceived usefulness (PU), perceived ease of use (PEU) and safety. Still, like many prior research, this study focuses largely on the key factors without also considering these factors at various levels, such as the individual, organisational and country levels. Improving the user satisfaction of the sharing economy is part of a series of systematic human engineering efforts. The influencing factors can therefore be divided into the micro, enterprise, industry, and macro levels. The study of factors affecting the users' adoption of sharing economy from the perspective of general usage alone based on social psychology is not comprehensive enough. Hence, a larger scale study of large population participating in online systems may be warranted and a new theoretical framework must be established to accommodate such thinking in future research. Such large-scale longitudinal studies must be conducted via the integration of the individual, organisational and country levels.

Differences are found in the conditions and environment of economic development, information infrastructure, laws and regulations and culture in different countries that are in different developmental stages. Hence, the development of the sharing economy in different countries is imbalanced, and the factors affecting the users' adoption of the sharing economy are different. At present, the studies relevant to the sharing economy are from countries and regions with increasingly developed economies and high penetration rate of mobile Internet, such as Europe, the United States, South Korea, Japan,

and Taiwan. Few studies have examined less developed countries and areas with a relatively low penetration rate of mobile Internet, for example, rural China. Therefore, the next step is to conduct a study concerning the satisfaction of users on m-commerce from the rural areas and marginalized regional perspectives.

The empirical study investigates the factors affecting the users' adoption of sharing economy from a microscopic point of view and derives interesting conclusions. However, the selection of study objects is limited. Although the users involved in the sharing economy at present are young users, these users may have different perspectives towards the sharing economy due to the differences in living habits, income and region. Future studies need to expand the scope of the investigation and focus on different groups of users such as the elderly or minority groups.

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APPENDIX A: QUESTIONNAIRE CONSTRUCTS & ITEMS

System Quality

- SQ1: The software system has an accurate location for users
- SQ2: The operating system of platforms is simple and smooth
- SQ3: Finding an effective feedback system is easy

Interaction Quality

- IQ1: Your complaint and advice can receive good response
- IQ2: The information of the sharing economy updates timely
- IQ3: The sharing economy can communicate with you and understand your demands in time

Safety Factor

- SF1: I feel secure about the service of the sharing economy
- SF2: I would not worry about the crime of using the sharing economy
- SF3: Sharing economy trade according to the legal process system

Conformity Influence

- CI1: My family and friends support me use sharing economy
- CI2: My family and friends encourage me to sharing economy
- CI3: My family and friends expect me to use sharing economy to satisfy some consumer demand

Perceived Ease to Use

- PE1: The sharing economy alter my concept of using resource
- PE2: The sharing economy can accurately distribute the vacant resource
- PE3: The sharing economy is very convenient, and saves our space and time

Perceived Trust

- PT1: Using the sharing economy can add happiness to my life
- PT2: Using the sharing economy allow me to experience the fast and fashionable modern lifestyle
- PT3: Using the sharing economy can satisfy my curiosity about new things

Attitude Factors

- AF1: The sharing economy alter my concept of using resource
- AF2: The sharing economy can accurately distribute the vacant resource
- AF3: The sharing economy is very convenient, and saves our space and time

Intention to Use

- IU1: I think the sharing economy is worth praising highly
- IU2: I think the sharing economy is the embodiment of social progress
- IU3: I think the sharing economy has a positive impact on the human life and environmental protection
- IU4: If there is a chance, I will be a provider of the sharing economy

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