

Measuring E-Commerce Adoption Behavior of Z-generation in A Developing Country, Evidence from Mongolia

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Abstract

To analyze e-commerce adoption behavior of Z generation in Mongolia. The effects of personal innovativeness, perceived usefulness, social influence and perceived risk on intention through the mediation role of attitude were specifically examined. In order to achieve the purpose of the research, a survey was conducted on consumers who experienced online shopping malls from October 21, 2020 to November 2, 2020. A total of 332 effective questionnaires were collected and the data were analyzed by using the SPSS and Smart PLS 3.3 programs. The current study reveals an individual's perceptions of the usefulness of personal innovativeness and social influence, which were important factors towards the adoption of e-commerce. Individuals who have a higher degree of perceived risk have a higher preference to try products without a prior evaluation. Marketers who intend to expand into developing markets such as Mongolia are advised to consider consumer generation and attitudes towards adopting new technology. The study enhances our perception about young generation in Mongolia, whose behavior and action are similar to those young people, who live in a developed country.

Keywords: Z-generation, Personal innovativeness, Perceived usefulness, Perceived Risk, Social influence, E-commerce adoption

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1. Introduction

Consumer behavior has undoubtedly changed over the last thirty years in Mongolia due to globalization, social system, economy and the development of a new era of information technology. Information technology has a significant impact on developing business, which helps business industries successfully run in the long term (Winwin Yadiati and Meiryani, 2019). However, rapid growth is taking place much faster than the development of the business itself, which has a significant influence on the development of new business models.

In order to stay in a highly competitive market, companies need to meet the demands of the customers. Therefore, leading business organizations are seeking out new innovative technological opportunities. The rapid transition of information technology allows consumers to simplify and adapt business processes through their industries and make their companies smarter.

E-commerce has increasingly changed traditional retail shopping, as many consumers have adopted it on a global scale. Currently, every individual can easily buy products and services from everywhere in the world (Lim and Dubinsky, 2004; Prasad and Aryasri, 2009).

To become the winner in the highly competitive market, companies have to classify themselves as digital-first, be innovative in creating products, consider prices and places, and utilize a digital-based electronic commerce (e-commerce) platform respectively (Lawrence and Tar, 2010). E-commerce is defined as buying and selling products and services using the internet or online social networks. It creates valuable relationships between businesses and individuals through electronic communications (Saimunur, Rahman, 2014). E-commerce includes mobile sales, e-transactions, supply chain management and online transaction process (Sridhar, Seshadri, 2017).

E-commerce is considered to be the most critical medium to be optimized, and even social media, such as Facebook and Instagram have unique features that not only help people advertise their goods, but also sell them online (Diyan Lestari, 2019).

Social media is one of the manifestations of the rapid development of technology, a clear indication of progress, which has dramatically changed the way people communicate and receive information in the recent years. According to 2019's data, 66.9% or 2.1 million people of the total population of Mongolia (3.14 million) were actively using social media through digital media (www.crc.gov.mn). As stated in the previous study, 92.6% of the participants answered that the development of e-commerce in Mongolia is moderate. The development of e-commerce is directly related to the development of three parties: organizations, consumers, and technology. Their relationships must be developed simultaneously and provide all kinds of information. The question suggests that the slow development of the e-commerce market is directly related to the lack of information among stakeholders.

Recently, e-commerce is getting more attention from manufacturers and customers both locally and internationally in Mongolia, especially during the COVID-19 pandemic. Mongolia's e-commerce has remarkably improved over the last two years. Mongolia has a relatively good infrastructure for e-commerce, centered in the capital city of Ulaanbaatar. 2.6 million out of the population of three million have Internet access, 2 million use smartphones, 1.3 million use Facebook and Twitter on a regular basis (www.crc.gov.mn).

The above stated facts provide a very interesting target for researchers to study the consumer behavior of Mongolia. Even though, several studies have been conducted on an individual's behavior and their influence on e-commerce adoption, these studies mainly focus on developed countries. Very few studies have been undertaken on developing countries like Mongolia.

By focusing on Mongolia, this study enriches the extant knowledge on technology acceptance and e-commerce adoption behavior in developing and emerging market economies. Basically, it offers fresh insights into how different factors enhance consumer's purchases of products in the emerging market of Mongolia. This would actually assist key stakeholders, such as e-retailers, associations, and policymakers to develop and manage their strategies and initiatives to promote e-commerce. This study also provides insightful suggestions to decision-makers, such as governments, business owners and individuals evaluating e-commerce behavior among Mongolian people.

2. Theoretical background and hypothesis

The world has become more global and the market is easily accessible. E-business is defined as a business model that digitalizes a modern business model to suit the needs of consumers, and the development of new technologies, making it more efficient and effective. Businesses are moving towards this e-business era due to the evolution, change, and digital development of e-business. Michael Wade, who is the director of the Global Center for Digital Business Development (Wade, 2015) explains that "*the e-business evolution is an organizational change that aims to improve performance and efficiency through the use of digital technology and business models.*" If a company does not keep pace with the others and introduce digital technology to its business, it runs the danger of losing its competitiveness and market position. E-commerce is not only buying and selling products and services over the Internet, but also involves other activities such as commercial transaction to support the sales process (Nawarathna and Banda, 2019).

A complete definition of E-commerce is electronic communications and digital information processing technology in business transactions to create, transform, and redefine relationships for value creation between organizations and individuals (Emmanuel *et al.*, 2000). Previous studies indicate that personal innovativeness, self-efficacy, and perceived usefulness influence an individual's eagerness to adopt the technology (June, 2014; Delafrooz *et al.*, 2011). Agarwal and Prasad (1998) documented the first personal innovativeness concept related to the motivation and desire to accept and adopt new products and services (Lu, 2014). Self-efficacy is associated with how people think, believe, and feel and refers to beliefs in individual capabilities to successfully manage and accomplish tasks (Bandura, 1997). Self-efficacy studies aim to motivate individuals to accomplish effortful consumption tasks (Luszczynska and Schwarzer, 2005). Moreover, individuals perceive all information before decision making, and perceived usefulness refers to anything related to e-commerce adoption advantages (Delafrooz *et al.*, 2011; Cela and Cazacu, 2016; Liu *et al.*, 2013). Lu *et al.* (2005) found that perceived usefulness and ease of use were strong variables in consumer willingness to adopt the technology. They concluded that variables, such as personal innovativeness and social influence must be also considered in determining consumer acceptance. Innovativeness showed a direct effect on ease of use and usefulness, which in turn impacted the consumers repurchase intention to adopt wireless Internet services via mobile technology.

2.1 E-commerce in Mongolia

Mongolia is considered to have a very young age group of the population, who is adopting technology quickly and love shopping. Mongolian youth are comfortable using technology and preferring to shop online. The statistical data indicate that about 30% of the Mongolians belong to the group of 0-18 years, and 45% of them live in the capital city, Ulaanbaatar. The number of Mongolian people using the Internet has increased due to the advances in information technology, and the increased activity of e-commerce at present. In 2019, the number of Internet users in Mongolia was 5.5 million (duplicated numbers), which is 2.9 times more than in 2014. This led to a sharp increase in the number of Internet users with the introduction of the 3G network in 2014 and the LTE network in 2016.

In general, consumers can order and purchase products from a diverse range of websites for supermarkets, restaurants, grocery stores, food intermediaries, and delivery businesses, such as shoppymn, toktokmn, songomn and avlaamn. It is estimated that Mongolian consumers are likely to shop online. Given that many online shoppers visit virtual stores on social platforms, this inevitable trend has been speeded up by a drastic increase in the number of social media users (e.g. Facebook) in Mongolia.

The Mongolian e-commerce market is growing faster and expected to see tremendous growth over the next few years. Moreover, the World Health Organization (WHO) urges countries to take advantage of e-commerce in 2021. There is a tendency in Mongolia to opt-out of online shopping to avoid the spread of COVID-19 virus. The current Mongolian e-commerce industry has experienced unprecedented growth with its total revenue increasing over 60 percentages during last year (Mongol bank, 2020). According to an e-commerce market survey conducted by the Mongol Bank in May-June 2020, 95% or 3,331 out of 3,520 individuals purchased products online and 5%

(189) bought products for resale. 45% ordered through intermediaries in Mongolia, 23% made direct purchases from foreign websites, such as Amazon, Alibaba and G-market. In terms of age, 27% of the consumers are 16-25 years old, 46% are 26-35 years old, 22% are 36-45 years old, and the remaining 5% are over 46 years old. E-commerce is dominated by young women (66%). Even though e-commerce is well established in developed countries, it is still at an early stage in Mongolia, hence, there is a need to discover which factors contribute to its adoption.

2.2 Hypothesis Development

Across various disciplines, innovativeness is described differently. A widely accepted definition among researchers was the degree of early acceptance of innovation (Agarwal and Prasad, 1999). Rogers (1995) defined innovativeness as the degree to which an individual adopted innovation before others did. Several studies found a direct and positive relationship between consumer innovativeness and purchase intention. The existing literature indicates that innovativeness had a positive relationship to customer repurchase intention with self-service technologies (Chen, 2008). Furthermore, Zhang *et al.* (2011) found a direct relationship between personal innovativeness and attitude toward using information technologies. Due to the novelty of the e-commerce atmosphere in Mongolia, it is expected to see innovators as the first individuals to purchase products online. The belief that e-commerce is a new way of buying goods that could offer benefits, such as lower prices, convenience, and wider choice would tend to attract more people with a high level of innovation than people with a lower level. Agarwal and Karahanna (2000) found that people who has higher level of personal innovativeness difference variable as a new construct to Davis' original TAM model and hypothesized that individuals with higher levels of personal innovativeness are expected to develop more positive perceptions about the innovation in terms of advantage, usefulness, compatibility. and have more positive intentions toward the utilization of a new information technology.

It is posited, that individuals who have the ability to adopt new ideas and changes have higher tendencies to evaluate e-commerce systems favorably. This leads to the following hypotheses:

H1: Personal innovativeness has a positive effect on attitude in adopting an e-commerce platform.

H2: Personal innovativeness has a positive effect on the intention to adopt an e-commerce platform.

H3: Personal innovativeness has a positive effect on perceived usefulness in adopting an e-commerce platform. Perceived usefulness is one of the cognitive factors that discover the acceptance of information technology, according to TAM (Agarwal and El-Masry, 2016).

Perceived usefulness is an individual's perception that using new technology will enhance or improve her or his performance (Davis, 1989; Davis, Bagozzi, and Warshaw, 1989). In the technology acceptance model, an individual's intention towards new technology is strongly affected by their perceived usefulness and perceived ease of use, which in turn lead to the intention to use new technology (Davis *et al.*, 1989). Furthermore, Kurnia and Chien (2003) found that both perceived usefulness and attitude positively affect intention to buy products online.

Social influences refer to perceived pressures from social networks to make or not to make a certain behavioral decision. In sociology, social network effects have been used to explain and understand a variety of organizational behavior phenomena, such as commitment and satisfaction (Krackhardt and Porter, 1985). However, social influences have been regarded a critical element in innovation diffusion literature as well (Cooper and Zmud, 1990; Klouglan and Coward, 1970; Laudon, 1985; Triandis, 1971). Support from influential others has an important impact on what action a potential adopter chooses to take, because individuals adapt their attitudes, behaviors and beliefs to their social context (Salancik and Pfeffer, 1978). This study explores how the effects of perceived usefulness affect an individual's intentions to adopt an e-commerce platform. Based on the above theoretical background, the following hypotheses are proposed:

H4: Social influence has a positive effect on perceived usefulness in adopting an e-commerce platform.

H5: Perceived usefulness has a positive effect on attitude in adopting an e-commerce platform.

Attitude has been one of the key variables for adopting e-commerce (Chen and Tan, 2004; Richard, 2005). Quevedo-Silva *et al.* (2015) discovered that attitude had a positive relationship with the intention to purchase products online among Brazilian shoppers. This finding is also confirmed by Loketkrawee and Bhatiassevi (2018), who claimed that attitude has a strong influence on consumer's intentions to use online grocery shopping.

Consequently, it can be considered that the more positive the attitude of an individual to e-commerce, the greater will be the willingness to adopt an e-commerce platform.

Based on the above theoretical background, the following hypothesis is proposed:

H6: Attitude has a positive effect on the intention to adopt an e-commerce platform.

Perceived risk can be categorized into two significant types: behavioral risk and environmental risk (Park and John, 2010). Behavioral risk essentially happens as a consequence of online retailers' action, who generally aim to gain multiplied advantages from the online shopping technique. Product risks are typically pertained to consumers' reflection of online spent time by attaining a pleasant feeling and contemplation of the value of the

products or services (Park and John, 2010). Environmental risk is the outcome of emotional and spontaneous deliberation that takes place during the engagement in a purchasing action, which usually involves online shopping between an online retailer and consumer (Park and John, 2010). Online shopping implies financial and security risks, because it is difficult to control the transaction. It is imperative for decision makers to scrutinize consumer behavior in connection with risk due to the high uncertainty in online transactions. According to Brettman (1973), decision makers must develop strategies in order to decrease individual perceived risk. Perceived risks influence the perceived usefulness. For instance, the way consumers perceive risks, such as in case of product failure, when they perceive the product not to be useful for them. According to Huotilainen and Tuorila (2005), people are suspicious of new technologies and have bigger trust in production. Furthermore, Siegrist *et al.* (2007) suggest that perceived risk has a negative correlation with willingness to buy a product. This means that the higher the risk, the lower the acceptance.

This has to do with the usefulness of the technology people experience. Therefore, this leads to the following hypothesis:

- H7: The higher the perceived risks, the lower the perceived usefulness.
- H8: The higher the perceived risks, the lower the attitude to adopt an e-commerce platform.
- H9: The higher the perceived risks, the lower the intention to adopt an e-commerce platform.

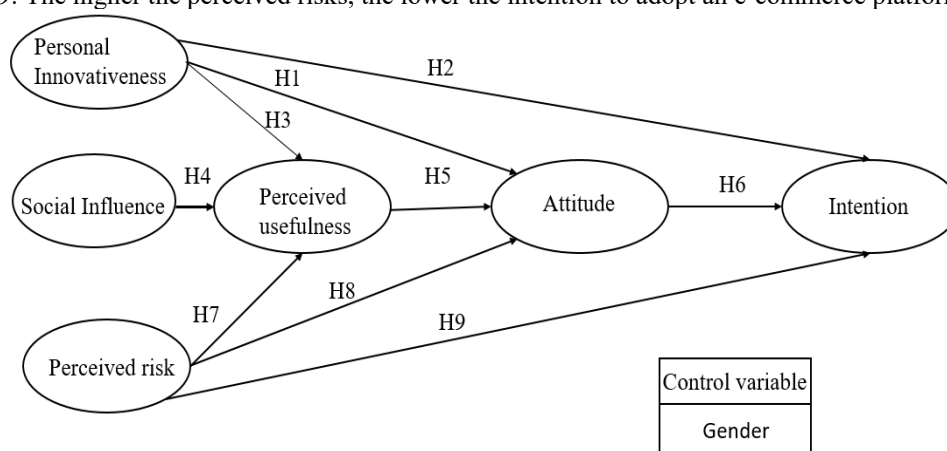


Figure 1: Research model

3. Research methodology

3.1 Objectives of the Study

This study investigates the e-commerce adoption behavior of generation Z (gen Z) in Ulaanbaatar Mongolia using 332 valid data. The data had been specifically examined and assessed that will help the reader to understand the influence of young people’s innovativeness, social influence, perceived usefulness and risk on e-commerce adoption in Mongolia. Therefore, the target population of this study was gen Z, who lived in Ulaanbaatar, Mongolia.

3.2 Research Design

This study was based on primary data by using quantitative approaches. The quantitative part was based on standardized questionnaires and involved 332 participants.

3.3 Data Collection Procedure

This study was conducted in the period between 21st October and 2nd November 2020.

A randomly selected sample of 400 Mongolian people were participated in this research. A total of 400 questionnaires were distributed, and 332 were returned. Sixty-eight questionnaires were not fully answered and were thus excluded from the analysis. Table 3.1 shows the frequencies and percentages of the study sample characteristics. Consequently, a total of 400 samples, constituting an 83% returned ratio were applied in this study.

Table 3.1 Response rate

Descriptions	Number and percentage
Sample size	400
Surveys returned	332
Raw response rate	83%
Incomplete questionnaires	0
Percent number unusable	1.2%
Net number usable	332

Table 3.2 Demographic profile of respondents

Variable	Data	Number	Percentage
Gender	Male	130	39.2%
	Female	202	60.8%
Income	Up to 1 million	97	29.2%
	1-2 million	142	42.8%
	2-3 million	63	19%
	More than 3 million	30	9%
Job	Government organization	47	14.2%
	Business company	55	16.6%
	Private business	40	12%
	Unemployed	28	8.4%
	Student	138	41.6%
	Others	24	7.2%

Note: currency by Mongolian tugrug.

Table 3.2 demonstrates the demographic characteristics of the respondents. Out of 332 respondents, there were more female (60.8%) than male respondents (39.2%).

3.4 Measurement

There were 18 items used to measure six constructs on a five-point Likert scale (1= strongly disagree and 5= strongly agree). Personal innovativeness was measured using the items developed by Agarwal and Prasad (1998) and Hong *et al.* (2013). Perceived usefulness was evaluated by adapting items developed by Thompson *et al.* (1994), Davis (1989), and Hong *et al.* (2013). Perceived risk was estimated by items adapted from Cela and Cazacu (2016), while social influence was assessed by Corbitt, B.J., Thanasankit, T. and Yi, H (2003). Attitude was measured by using items developed by Wang and Liu (2009), and intention to adopt was calculated by using items adapted from Davis (1989), Hong *et al.* (2013), and Hwang (2005). The items are grouped under each variable in the questionnaire.

4. Results

4.1 Data Analysis Procedure

Partial Least Square (PLS) was employed to test the model and hypotheses. The model estimation was performed by Smart PLS 3.0 (Ringle *et al.*, 2013). T-values were calculated using a bootstrapping procedure with 1000 re-samples (Chin, 1998). Smart PLS-3 path models have two sets of the linear equation: Inner model (structural model) and outer model (measurement model). The inner model specifies the relationship between unobserved or latent variables, and the outer model identifies the relationships between the latent variable and its observed manifest variable (Henseler *et al.*, 2009).

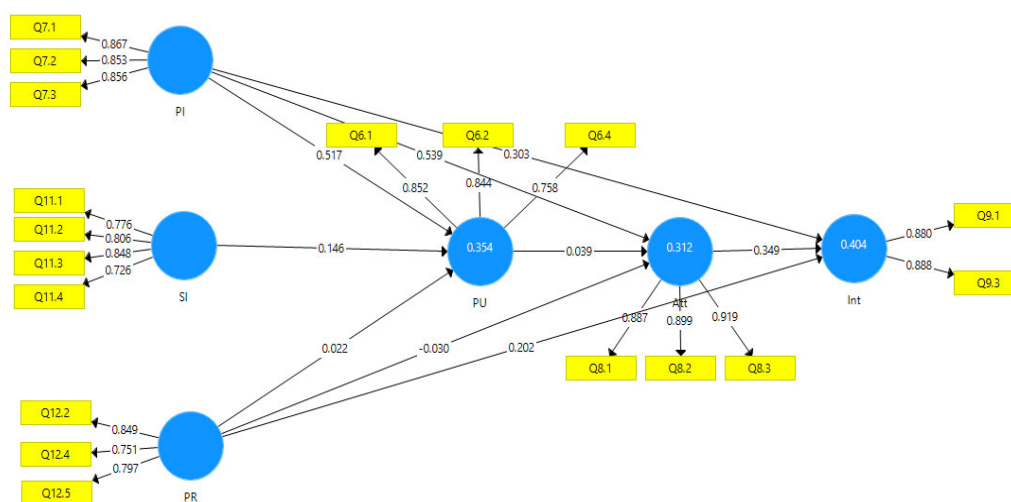


Figure 2: Smart-PLS test results

4.2 Measurement Model

The general approach recommended by Gefen *et al.* (2000) for evaluating validity and reliability was followed.

Table 3.3 presents the discriminant validity test, which is performed by cross loading the data among the variables and shows that all items exhibit high loading (>0.7) no item loaded higher on the constructs, which indicates strong discriminant validity. The aim of the discriminant validity analysis is to provide a clear assessment of whether the proposed construct has the highest relationship with its indicators compared to the other construct.

Convergent and discriminant validity was examined for the assessment of validity. The average variance extracted (AVE) is used as a criterion of convergent validity (Fornell and Larcker, 1981). If AVE is more than 0.5, it indicates that the construct has sufficient convergent validity. To measure internal consistency, composite reliability (CR) is used. The value of CR must be higher than 0.7. The data shows that CR is more than 0.7 and AVE is more than 0.5, so all constructs have convergent validity. Furthermore, Fornell and Larcker (1981) criterion was used to assess discriminant validity. The AVE of each latent variable should be higher than the squared correlations with all other latent variables ($AVE > \phi^2$). The data indicates that all AVE exceed the squared correlation, so all constructs have discriminant validity. Cronbach's alpha and composite reliability are used to measure internal consistency and reliability based on the interrelationship of the observed item variables. Table 3.4 illustrates that the data are reliable because both Cronbach's alpha and the composite reliability are above 0.7 (Eisingerich and Rubera, 2010). The Average Variance Extracted (AVE) measures the convergent validity. The data have adequate convergent validity if the AVE score exceeds 0.5.

Table 3.3 Cross loading

	PI	SI	PR	PU	ATT	INT
Personal innovativeness						
PI1	0.867					
PI2	0.853					
PI3	0.856					
Social influence						
SI1		0.776				
SI2		0.806				
SI3		0.848				
SI4		0.726				
Perceived risk						
PR1			0.849			
PR2			0.751			
PR3			0.797			
Perceived usefulness						
PU1				0.852		
PU2				0.844		
PU3				0.758		
Attitude						
Att1					0.887	
Att1					0.899	
Att1					0.919	
Intention						
Int1						0.880
Int2						0.888

Table 3.4 Reliability, Convergent and Discriminant Validity

Constructs	Cronbach's Alpha	CR	AVE	Attitude	Intention	PI	PR	PU	SI
Attitude	0.885	0.929	0.813	0.902					
Intention	0.719	0.877	0.781	0.532	0.884				
Personal innovativeness	0.822	0.894	0.738	0.557	0.533	0.859			
Perceived risk	0.738	0.842	0.640	0.700	0.280	0.173	0.800		
Perceived usefulness	0.754	0.859	0.671	0.348	0.456	0.578	0.136	0.819	
Social influence	0.799	0.869	0.624	0.424	0.463	0.398	0.169	0.355	0.790

4.3 Structural Model

As the outer model shows that data is reliable and valid, the inner model can be evaluated as well. The structural model (inner model) specifies the relations among latent constructs. The significance level of path coefficients with a bootstrapping with 1000 re-samples was tested.

Results indicate that all hypotheses are supported. Table 3.4 demonstrates the results of the hypothesis testing and the PLS structural model. The hypotheses are tested by path coefficients and significance levels. First, the researcher analyzed the indirect effect between the independent variable and the intervening variable. An indirect relationship exists between the variables if the t-value is above 1.96. The results show that PI-ATT (11.552), PU-ATT (0.567), and PR-ATT (0.555) could not exceed 1.96. As a result, it can be concluded that there is an indirect effect on these variables. The proposed conceptual model is supported by empirical data except hypothesis 3 and 5. The results of the hypothesis testing are summarized in Table 3.5.

Table 3.5 Path coefficient results

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics	P-value	
Dependent: Perceived Usefulness						
Personal innovativeness	0.517	0.513	0.047	10.913	0.000***	
Social influence	0.146	0.152	0.045	3.264	0.001**	
Perceived risk	0.022	0.024	0.048	0.451	0.652	
R2						0.448
R2 adjustment						0.512
Dependent: Attitude						
Personal innovativeness	0.539	0.536	0.047	11.552	0.000***	
Perceived usefulness	0.039	0.043	0.070	0.567	0.571	
Perceived risk	-0.030	-0.024	0.053	0.555	0.579	
R2						0.414
R2 adjustment						0.410
Dependent: Intention						
Personal innovativeness	0.303	0.229	0.057	5.331	0.000***	
Perceived risk	-0.202	-0.202	0.047	4.277	0.000***	
Attitude	0.349	0.351	0.053	6.549	0.000***	
R2						0.410
R2 adjustment						0.317

*** $p < 0.00$, ** $p < 0.05$, * $p < 0.10$

First, the researcher analyzed the indirect effect between the independent variable and intervening variable. To examine the indirect effect, this study uses the Sobel test, which compares the coefficient score and standard deviation to determine the t-value. An indirect relationship exists between the variables if the t-value is above 1.96. The results show that the t-value of PI-ATT-INT (5.135) is exceed 1.96. Thus, it can be concluded that there is indirect effect between these variables. The other variables are below 1.96, as a consequence, there is no indirect effect among these variables. Individuals who have a higher degree of perceived risk have a higher preference to try or test products without a prior judgement. The proposed conceptual model is mostly supported by the empirical data. The path analysis provides support for several hypotheses in this research. The results of the hypothesis testing are summarized in Table 5. Hypotheses 1 is supported, as personal innovativeness has a positive impact on attitude, which is strongly supported by Amoroso and Lim (2015), Lu (2014), and Turan et al. (2015), who state that personal innovativeness has a positive effect on attitude. This finding illustrates that young individuals who can embrace new ideas and practices, as well as accept change, in their case the tendencies are higher to assess e-commerce systems favorably. Due to the creativity, imagination and new ideas of the gen Z, they can be characterized as innovative persons. Therefore, they have a relatively higher curiosity in trying new products and evaluating products more than those, who have lower levels of personal innovativeness. According to Agarwal and Prasad (1998), individuals can be categorized as innovative, if they keen on to adopt an innovation. Amoroso and Lim (2015) argues that personal innovativeness demonstrates a system's ability to form individuals' motive to assess a product or service. As a result, it can be suggested that innovative individuals could become more involved in evaluating a platform.

Hypothesis 2 is valid, as it suggests that people who have a higher level of innovativeness have a behavioral intention to apply an e-commerce platform. Consequently, individuals with a high degree of personal innovativeness have a higher degree of adopting new products or services. According to the findings, it is suggested that more consumers can be attracted, especially young individuals by creating e-commerce platforms with more

creativity, which can provide more benefits to them. Hence, business owners should focus on providing a wider range of products or services by designing a website with an attractive layout, as well as with several options, and generating user-friendly ecommerce platforms, while governments may invigorate citizens by strengthening the ICT infrastructure. Business owners could create better platforms that provide more advantages to consumers thanks to better support from the government for ICT infrastructure. Individuals/consumers will be able to access the Internet and e-commerce platforms more easily and engage in online shopping due to a better ICT infrastructure.

Gen Z is basically interested in adopting new ideas, including products or services. Hypothesis 3 is supported as personal innovativeness has a positive effect on perceived usefulness in adopting an e-commerce platform. As it suggests that people who have a higher level of innovativeness generates a strong impact on perceived usefulness, which is strongly supported by Agarwal and Prasad (1998). Hypothesis 4 is valid, as it suggests that social influence has positive influences on perceived usefulness. Hypotheses 5 is not valid, as it suggests that perceived usefulness by e-commerce users could not inspire individuals to assess and adopt such platforms. As a consequence, perceived usefulness may not become a major aspect that impacts individuals in the decision-making process.

Hypothesis 6 is valid, as the attitude has a positive effect on the intention to adopt e-commerce platforms. This finding indicates that the higher the individual's likelihood to assess a platform, the higher the preference towards e-commerce adoption (Turan et al., 2015). Individuals could be triggered to adopt a platform by thanks to higher level of positive responses. This result is also consistent with a previous study, that was investigating individual behavior theories, such as the TAM, TRA, and TPB.

Hypotheses 7 and 8 are rejected, which are the higher the perceived risks, the lower the perceived usefulness. The higher the perceived risks, the lower the attitude to adopt an e-commerce platform. The results show that perceived risk does not lead individuals to adopt e-commerce platforms. This finding indicates that gen Z prefer to evaluate a platform first before adopting the platform. If the response is less favorable, they will not intend to adopt.

Decision makers should be aware that they must create powerful products that trigger gen Z's curiosity to embrace, which could drive the young individuals to adopt without evaluating the e-commerce platform (Saadé et al., 2012)

Finally, hypothesis 9 is supported, because perceived risk has a positive effect on the intention to adopt e-commerce. Based on the findings, young generation in Mongolia do not perceive e-commerce platforms too risky, and according to their opinion, it is safe enough to perform some tasks through e-commerce systems. Mongolia is a developing country, where young generation has similar attitude and intention to adopt e-commerce technology.

Table 3.5 The results of the hypothesis testing

	Hypotheses	Results
H1	Personal innovativeness has a positive effect on attitude in adopting an e-commerce platform.	Confirmed
H2	Personal innovativeness has a positive effect on the intention to adopt an e-commerce platform.	Confirmed
H3	Personal innovativeness has a positive effect on perceived usefulness in adopting an e-commerce platform.	Confirmed
H4	Social influence has a positive effect on perceived usefulness	Confirmed
H5	Perceived usefulness has a positive effect on attitude in adopting an e-commerce platform.	Rejected
H6	Attitude has a positive effect on the intention to adopt an e-commerce platform.	Confirmed
H7	The higher the perceived risks, the lower the perceived usefulness	Rejected
H8	The higher the perceived risks, the lower the attitude to adopt an e-commerce platform	Rejected
H9	The higher the perceived risks, the lower the intention to adopt an e-commerce platform	Confirmed

5. Conclusion

The e-commerce adoption behavior of individuals in Ulaanbaatar, Mongolia was investigated in this study. The data was specifically examined and assessed that will help to understand the influence of an individual's perceived usefulness, personal innovativeness, social influence and perceived risk on e-commerce adoption. The findings indicate that an individual's perceived usefulness, personal innovativeness, social influence and perceived risk enhance the behavior of e-commerce adoption. However, perceived usefulness and risk did not influence the attitude. Although, the dimensions of TAM have been studied in previous research, no known researchers have been found to empirically study the dimensions of TAM in the Ulaanbaatar, Mongolia context. Therefore, this study has added to the growing body of research in TAM by using a series of tests to assess for validity and reliability of the constructs. First, the conceptual model has a good fit with the sampling data. Furthermore, all hypotheses were empirically supported. The results indicate that perceived innovativeness has a positive influence on attitude, which is also supported by Amoroso and Lim (2015), Lu (2014), Turan *et al.* (2015) and Diyan Lestari (2019). These findings explain that people who are able to adopt new ideas and practices are more likely to evaluate

e-commerce platforms. Additionally, the results reveal that self-efficacy has a positive influence on attitude. It indicates that the higher the confidence level in using an e-commerce platform, the higher the tendency to evaluate the platform (Ayub *et al.*, 2017). When people believe that they can use an e-commerce system, they prefer to adopt the system (Pihie and Bagheri, 2013; Campo, 2011). It can also be concluded that people in Mongolia are relatively confident in operating e-commerce platforms. Higher self-efficacy motivates individuals to assess a platform and try to adopt it. For decision-makers, enhancing self-efficacy is essential. Different strategies can be developed to utilize tools in order to motivate, attract and educate their users. These efforts can be started by developing a positive e-commerce platform campaign, providing clear user manual guides, and creating user-friendly platforms. The results indicate that higher perceived usefulness obtained by e-commerce users could motivate individuals to evaluate and adopt e-commerce platforms. This result is also supported by Hamid *et al.* (2016) and Dohan and Tan (2013). Perceived usefulness may become a major aspect that influences individuals in the decision-making process. Hsu and Bayarsaikhan (2012) found that online shopping is perceived as more convenient by Mongolian consumers, and it also provides numerous advantages. A higher degree of intention could result from a positive response. With the rapid growth of online shopping, the intention will depend on favorable judgments of a product (Khan *et al.*, 2015). The results also suggest that business owners should create e-commerce platforms that provide more benefits and become more creative in attracting consumers. Finally, it shows that attitude has a positive influence on intention. A higher level of positive responses could trigger individuals to adopt a platform. Nowadays, especially in the business field, individual understanding behavior can be an appropriate tool for formulating such long-term business strategies. In addition, by providing content regulation, creating awareness, and providing information and communication technology infrastructure, it allows individuals to generate value through e-commerce systems, governments and regulations for consumer protection and support e-commerce companies.

5.1 Managerial implication

It is vital for all e-commerce companies to empirically test the effect of their customer's attitudes and adoption behavior over and above a mere consideration of their performance. For managers, the section on managerial implications discusses the relevance of the findings to the practice of business management and marketing and makes recommendations for managerial actions. Such results have a practical effort on both business and customers. Companies need to be trained, and consumers should be aware of the advantages of the e-commerce company. Some of the training sessions may include video or content on television for their organizations and the public. This is important, because at the level of intensity of development, behavioral concerns are believed to have a key role to play in the adoption of e-commerce. Moreover, the program should be in Mongolian language and easy to use. It should be easy for those who want to trade online, and it should be easy to use and have a simple structure.

5.2 Limitation and future studies

Like many other studies, this study also has its limitations. One of the circumstances that may have negatively influenced the results is the insufficient number of participants in the present study. Due to limited time, 332 participants were conducted in Ulaanbaatar city in Mongolia. By increasing the sample size, testing this model extensively, a future research could be generalized to critically evaluate the proposed framework. Data has been collected from the only capital city of Mongolia, which may not represent the whole country's population. Future studies are highly recommended to select a more diversified group of individuals. Moreover, culture also affects attitude and adoption behavior differently. The final policy implication is that the Mongolian government should pay more attention, provide better access, and create better regulation for managing e-businesses and consumer protection due to the high economic potential of e-commerce. Consequently, these can be considered as potential limitations for a future study.

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