The Intention and Use Behaviour of the Mobile Banking System in indonesia: UTAUT Model

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Abstract— This paper reports the results of the investigation of UTAUT model implementation's implementation of intentions and behavior to use m-banking among Indonesian customers. The population is the unknown number of m- banking users. Therefore, non-probability or convenience sampling techniques are implemented here. Samples total successfully collected and used was 137 respondents. We use Structural Equation Modeling analysis techniques. The effect of performance expectancy on the behavior intention is insignificant, but the effect of effort expectancy is positive and significant. Likewise, the effect of social influencing on the intention to use is irrelevant, but the impact of facilitating conditions is positive and significant. The impact of behavior intention on use behavior is positive and significant. This paper's originality is that the determinants of intention and behavior to use m-banking among urban and millennial generation in Indonesia are effort expectancy and facilitating conditions. The urban and millennial generation is more individualistic than collectivistic. So they do not need social influence to aware benefits of using m-banking. They use m-banking, especially for individual and daily activities purpose than to help their work, so performance expectancy is not a factor that influences them to use m-banking.

Keywords— UTAUT, performance, effort, social influencing, facilitating, intention to use, use behavior.

1. Introduction

There has been a change in consumer behavior in Indonesia. It is now relying heavily on mobile devices to carry out various activities due to the rapid penetration of mobile devices. This growth is supported by the growth of technology and network capacity that is adequate at more affordable costs. The rapid penetration has led to increasing public consumption of various digital services [4]. Approximately 143 million people in Indonesia, which means more than 50 percent of 262 million populations is stated by the Association of Indonesian Internet Service Providers (APJII) have accessed the internet throughout 2017. And 72.41 percent of internet users are urban people. They do not only use the internet as a communication channel, but also to facilitate shopping, transportation transaction, and even business. Geographically, the most internet users in Indonesia are Java island (57.70 percent), furthermore Sumatra island (19.09 percent), Kalimantan island (7.97) percent, Sulawesi island (6.73 percent), Bali and Nusa Tenggara islands (5.63 percent), and Maluku and Papua islands at the 2.49 percent [7]. Zhang, Lu, and Kizildag [36] said that bank services are increasingly being used in daily life related to work, education, entertainment, shopping, and socializing. Then mobile banking allows customers to conduct banking transactions through a personal platform. Transaction modes through mobile banking have become popular among the public. Customers and banks can take the advantages that are provided by the m-banking platform. The use of mobile banking facilitates saving time for customers. It also gives convenience in various customer situations. Independent banking services allow banks to offer cost-effective services to customers, thereby increasing service effectiveness [26]. Some factors drive customers' intention to take advantage of m-banking application and use it continually. Performance expectancy is one of the factors. Customers use m-banking in hopes of helping their work performance. The effort expectancy is another one of the factors. Customers will interest in using m-banking if they feel easiness

in the technology using. Then the social influencing, when people who give much influence to the customer use the m-banking, will drive him or her to take advantage of m-banking. Likewise, the facilitating conditions have been proven as a stimulus for the customer to take advantage of IT innovation as m-banking [31]. The main factor influencing mobile banking adoption is performance expectancy, and then it is followed by effort expectancy and then social influence [28]. Likewise, Moghavvemi, Salleh, and Standing [19] stated those factors are antecedents of behavior intention and use behavior. Those factors motivated the customer to take advantage of m-banking, and they continue to use it in their every time financial activities.

Baabdullah et al. [5] investigate the most critical factors of intention to adopt mobile banking among Saudi customers' continued intention towards taking mobile banking, using TAM and TTF (task-technology fit) models. They found that TAM and TTF factors are determinants of the intention to use mobile banking. One of the recommendations for future research of the study is to add personal and psychological factors. Farah et al. [10] investigate the significant factors of the M-Banking adoption use the UTAUT2 model by involving 490 respondents in Pakistan. They found that all UTAUT factors influence usage behavior. One of the recommendations for the future research of the study is to examine the UTAUT in cross-culture. Owusu Kwateng et al. [21] investigate factors of the m-banking adoption in Ghana using UTAUT2 model, did not find that all of UTAUT factors is significant factors of the behavior intention to use m-banking. Still, an additional element for UTAUT2, such as habit, price value, and trust, are the main factors of the intention. Raza et al. [24] examine the UTAUT2 factors to measure the M-banking adoption in Islamic banks of Pakistan and found that except social influence factors, other factors of UTAUT2 are an essential factor of the intention. Base on the above previous studies, this paper will fill in gaps research. If Baabdullah et al. [5] recommend adding factors out of TAM factors to measure behavior intention of m-banking adoption, this study will examine UTAUT factors to predict the intention. Farah et al. [10] investigate UTAUT2 in Pakistan and recommend examining the UTAUT cross-culture, then this study is then conducted in Indonesia. Owusu Kwateng et al. [21] found that four UTAUT factors did not influence the m-banking adoption among young people in Ghana. This study will examine the effect of UTAUT factors of m-banking acceptance among young people in Indonesia. Raza et al. [24] found that except social influence factors, other factors of UTAUT2 are an essential factor of the intention in Pakistan. It is then necessary to test the effect of social influence on behavior intention of m-banking adoption in Indonesia whether this study will prove the same thing that social forces are not essential factors of the intention in the Indonesia context.

This paper is the result of a study that examined five hypotheses:
1.   The performance expectancy will impact on the behavior intention of m-banking using.
2.   The effort expectancy will impact on the behavior intention of m-banking using.
3.   The social influence will impact on the behavior intention of m-banking using.
4.   The facilitating conditions will impact on the behavior intention of m-banking using.
5.   The behavior intention will impact the use behavior m-Banking application in Indonesia.

2. Literature Review

The UTAUT model is popularized by Venkatesh et al. [31]. This model is based on a study of the literature received by IT researchers. They discussed the eight models that are most widely adopted or accepted by IT researchers [35]. The variables in the above hypotheses are the primary constructs of the UTAUT. In 2012, Venkatesh et al. [32] added to UTAUT the hedonic motivation, price value, and habit and examined IT utilization in the context of consumers. It is called UTAUT2 [32]. The performance expectancy is the level of benefits for innovative technologies in carrying out their activities [32]. According to Moghavvemi et al. [19], IT users will relate expected results and IT performance expectancy. The effort expectancy is the level of convenience that users feel when using a particular technology [31]. According to Yaseen & Qirem [35]

this variable is likely to be adapted and developed from the ease of use that was developed by Davis [9] and also by Moore and Benbasat [20], and complexity by Thompson, Higgins, and Howell [29]. Social influence is a special feeling about the importance of technology using because most people also believe it is indeed essential [31]. Then according to Yaseen & Qirem [35], this construct is adapted from subjective norm constructs used, for example, by Ajzen [2]. The facilitating conditions are the condition that technology users felt that technical systems or infrastructure would support or facilitate their activities [19]. According to Moghavvemi et al. [19], this construct is taken from the construct developed in perceived behavioral control from the Technology Acceptance Model and Theory of Planned Behaviour, then facilitating conditions from Model of PC Utilization and compatibility from Innovation Diffusion Theory. The previous studies, like Venkatesh et al. [31], proved that the main factor of intention to use IT innovation is performance expectancy. Then Agudo-Peregrina et al. [3] demonstrated that intention is a valid predictor of actual user behavior. Moghavvemiet al. [19] stated that when someone finds that the technology used is very helpful and beneficial to him, the higher the desire to use information technology to facilitate their daily activities. Performance support is an essential factor, especially in digital services [8]. According to Moghavvemiet al. [19], performance expectancy is expected results by IT users when they take advantage of IT. Moghavvemi et al. [19] also found that this variable significantly influences IT intentions to use.

Owusu Kwateng et al. [21] did not find that performance expectancy is factor that influence m-banking acceptance among young people in Ghana. But Farah et al. [10] found that performance expectancy is a factor that influence m-banking adoption in Pakistan. Raza et al. [24] also confirmed the hypothesis in Pakistan. Gupta and Arora [11] found that performance expectancy is a significant antecedent of the behavior intention of m-payment using in India. The theory and previous studies are the basis of our first hypothesis:
H1: The performance expectancy will impact on behavior intention of m-banking using.

Yaseen & Qirem [35] stated that more comfortable e-banking technology is used in the context of technology-based banking service products, the more bank customers will want to use it. More accessible technology will improve users' and service providers' interaction (Jauw and Purwanto, 2017). Moghavvemi et al. [19] stated that the need for businesses to learn and use new technologies would impact their acceptance or use. When many people use technology, it shows that the use of technology is effortless [18]. Therefore, the perception of people who use IT innovations will naturally require the ease of using them. Then Moghavvemi et al. [19] found the variable was a factor that impact on behavior intention of IT innovations using. Although Owusu Kwateng et al. [21] did not find that effort expectancy is factor that impact on behavior intention of use m-banking acceptance among young people in Ghana. But Farah et al. [10] and Raza et al. [24] proved that effort expectancy is a factor of m-banking adoption in Pakistan. Gupta and Arora [11] found that effort expectancy is a significant predictor of the behavior intention of m-payment in India. The theory and previous studies are the basis of our second hypothesis:
H2: Effort expectancy will impact on behavior intention of m-banking using.

Social influence explains that in the new technology adoption, users' social context is essential [25, 23]. Yaseen & Qirem [35] stated that social influencing influences intention to use. Although Owusu Kwateng et al. [21] did not find that social influence is the factor of intention to use m-banking among Young people in Ghana. And Raza et al. [24] also did not find that social influence is a significant factor of m-banking adoption in Pakistan. Gupta and Arora [11] also found that social influences have a weak or insignificant predictor of behavioral intention of m-payment using in India. But, Farah et al. [10] proved that social influence is a factor of m-banking adoption in Pakistan. According to Yaseen & Qirem [35], if the closest people or influential people tell that the use of m-banking is helpful, then the customer will tend to follow to use the technology. Moghavvemiet al. [19] also stated that previous studies have proven, and they also found that social

influencing will significantly generate intentions of the customer to use IT innovation. The theory and prior studies and basis of our third hypothesis:

H3: Social influence will impact on behavior intention of m-banking using.

Although Owusu Kwateng et al. [21] did not find that Facilitating conditions are variable that impact on behavior intention of m-banking using among young people in Ghana. But Raza et al. [24] found that Facilitating conditions is a significant factor of m-banking in Pakistan, as well as Farah et al. [10]. People interest in using particular technology because of facilitating conditions. Venkatesh et al. [32] explained they are included free training, free supports, and guidance provided free by companies to users of the technology or system. Thus facilitating conditions will influence people to use technology systems or applications (intention to use) to promote their activities. Gupta and Arora [11] found that facilitating conditions is a significant predictor of the behavior intention to use m-payment in India. Sobti [27] examine UTAUT factors to predict behavior intention to use m-wallets and m-banking among user's mobile payment in India. Sobti [27] that facilitating conditions influence mobile payment acceptance in India. The previous study is the basis of our fourth hypothesis:

H4: Facilitating conditions will impact on the behavior intention of m-banking using.

Ajzen and Fishbein [1] stated that individual intentions are determinant to user behavior. Behavior is defined as one's intention to take certain actions [13]. Use behavior predicts appropriate behavior as long as the person can take action voluntarily [1]. Then according to the Technology acceptance model, intention to use will determine use behavior [17]. As to use, user behavior is an endogenous variable of the Simplified UTAUT model [6]. Gupta and Arora [11] found that behavior intention influences use behavior to use m-payment in India. The theory and previous studies are the basis of our fifth hypotheses:

H5: Intention to use will influence user behavior.

Based on the above propositions, a conceptual model or framework can be constructed as in Figure 1.
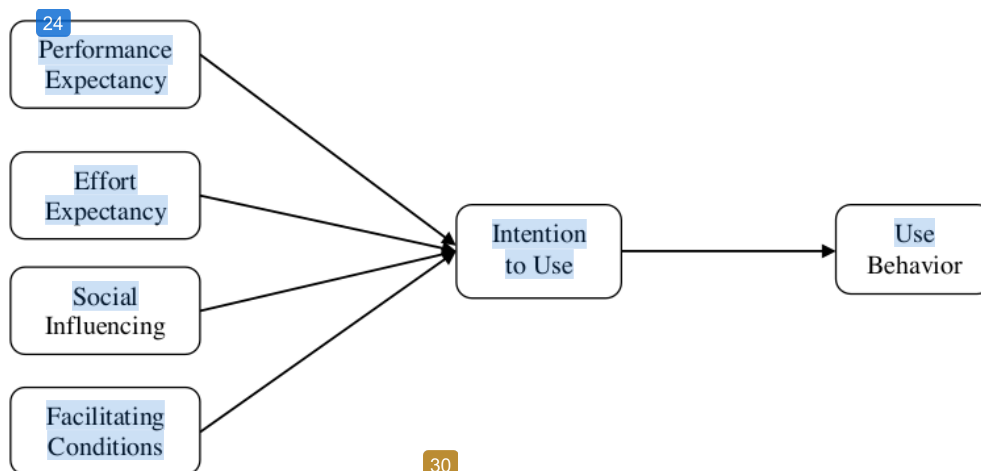

Figure 1 – The Research Model

3. Method

3.1 Population and Sample

The number of samples successfully collected and used in this study was 137 respondents. The population of this study is the unknown number of mobile banking users. Therefore, we use non-probability or convenience

sampling techniques. Solimun [15, 30] suggest sample size in non-probability sampling is five times the number of manifest items. Since the items of the study 22, then 137 samples are qualified. The 137 respondents answered "Yes" to the question, "Are you a user of the mobile banking application?" The majority of respondents are women (54.7%), and the rest are men by 45.3%. The majority of respondents domiciled in Jakarta, which is 62.8%. And then respondents domiciled in Tangerang, which is 20.4%. The rest are domiciled in Bogor, Depok, Bekasi, Semarang, Lampung, and even Shanghai. Then the majority of respondents are working in Jakarta (73.7%). The rest are working in Tangerang, Bogor, Depok, Bekasi, Central Java, Lampung, and 13.1% have not had a job yet. The majority of respondents are 21 to 30 years old (58.4%), then 21 to 40 years old (19%), 41 to 50 years old (15.3%), the rest are under 20 years old and above 50 years old. The majority of respondents are employees (64.2%), then students (15.3%), business owners (11.7%), and the rest are lecturers, housewives, professionals, project managers, and teachers. The majority of respondents have an undergraduate degree (54.7%), master's degree (21.2%), high school graduate (17.5%), and the rest are diplomas and doctoral degrees.

3.2 The measurement scale

The measurement scale of this study uses the UTAUT measurement scale that Venkatesh et al. [31] popularized. Four ítems of performance expectancy, four ítems of effort expectancy, four ítems of social influence variable, four ítems of facilitating conditions, three items of behavioral intention, and three ítems of use behavior variable.

3.3 The analysis techniques

This study uses Partial Least Squares-Structural Equation Modeling analysis techniques. Partial Least Squares (PLS) is the software using the SEM approach with data distribution assumptions [34]. Furthermore, Wiyono [33] stated that PLS is a SEM technique that can directly analyze latent variables, indicators, and measurements. According to Kock [16], SEM is currently the preferred quantitative analysis research technique for industry and interdisciplinary researchers. Explosive growth among empirical researchers from various disciplines occurs because PLS-SEM measurements provide many available indicators and latent variables. The study conducted the outer and inner evaluation. Outer loading ought to > 0.70 and Average Variance Extracted (AVE) ought to > 0.50 to show validity. Composite reliability ought to be> 0.70, and Cronbach's alpha should be> 0.70 to demonstrate reliability [12, 22]. For inner model t-statistic ought to > 1.96 and p-value should 0.05 to confirm hypotheses.

4. Result

4.1 Outer Model Evaluation

The examination of individual indicator reliabilities, internal consistency reliability, convergent validity, and discriminant validity are components of outer model assessment in PLS-SEM [12]. Hair et al. [12] said that the outer model evaluation that tests reliability and validity is the requirement of inner model estimation. So, it is clear that outer model evaluation is required to do an inner model evaluation.

Table 1. Indicator Reliability

	Outer Loadings		Outer Loadings
Performance Expectancy		**Facilitating Conditions**	
PE1	0.859689	FC1	0.802610
PE2	0.895119	FC2	0.885605
PE3	0.852620	FC3	0.827618
PE4	0.882233	FC4	0.357686
Effort Expectancy		**Intention to Use**	
EP1	0.877787	IU1	0.838063
EP2	0.909086	IU2	0.814896
EP3	0.887744	IU3	0.894587
Social Influencing		IU4	0.886804
SI1	0.854008	IU5	0.900707

SI2	0.866098	**Use Behaviour**	
SI3	0.837964	UB1	0.579088
		UB2	0.966931
		UB3	0.800380

Hair et al. [12] said that the reliability indicators are acceptable when standardized indicator loadings are ≥0.70. Table 1 shows the outer loadings of all individual indicators> 0.70. Thus the reliability indicator proved reliable.

Table 2. Construct Reliability & Validity

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Performance Expectancy	0.896	0.927	0.761
Effort Expectancy	0.871	0.921	0.795
Social Influencing	0.818	0.889	0.727
Facilitating conditions	0.702	0.824	0.560
Intention to Use	0.917	0.938	0.753
Use Behaviour	0.775	0.835	0.637

Hair et al. [12] suggested that internal consistency reliability measurement is not used Cronbach's alpha. The internal consistency reliability should be measured by composite reliability. Composite reliability must be ≥0.70, and composite reliability in this study is acceptable (see Table 2). So, it is concluded that the composite reliability of all variables is acceptable. Hair et al. [12] suggested that convergent validity measurement uses average variance extracted, and AVE should ≥ be 0.50. The AVE value of each construct is > 0.50 (see Table 2). So, it is concluded that the convergent validity of all variables is acceptable.

Table 3 indicates that Discriminant validity is accepted.

Table 3. Discriminant Validity

	EF	FC	ITU	PE	SI	UB
EF	**0.892**					
FC	0.702	**0.749**				
ITU	0.636	0.711	**0.868**			
PE	0.609	0.635	0.459	**0.873**		
SI	0.564	0.629	0.494	0.620	**0.853**	
UB	-0.177	-0.144	-0.150	-0.140	-0.122	**0.798**

4.2 Inner Model Evaluation

Table 4. Path Coefficients

	T Statistics (|O/STDEV|)	P Values	Status
Performance Expectancy -> Intention to Use	0.613	0.540	Rejected
Effort Expectancy -> Intention to Use	2.641	0.008	Accepted
Social Influencing -> Intention to Use	0.631	0.528	Rejected
Facilitating -> Intention to Use	4.212	0.000	Accepted
Intention to Use -> Use Behaviour	2.055	0.040	Accepted

Table 4 shows that the first hypothesis is insignificant because the T-value is 0.613 < 1.96 and P-value is 0.540> 0.05, but the second hypothesis is positive and significant because the T -value is 2.641 > 1.96 and P-value is 0.008 < 0.05. Likewise, the third hypothesis is insignificant because the T-value is 0.631 < 1.96 and P-value is 0.528 > 0.05, but the fourth hypothesis is positive and significant because the T-value is 4.212

> 1.96 and P-value is 0.000 < 0.05. As well as the fifth hypothesis is positive and significant because the T-value is 2.055> 1.96 and P-value is 0.040 <0.05.

5. Discussion

The first hypothesis is not proven significant. Yaseen and Qirem [35] said that most men interested in using technology are influenced by their expectations of the technology's benefits or performance. So, in a masculine culture, people would prefer to use mobile banking or e-banking service [35]. Since our respondents, the majority are women (54.7%), and refer to the cultural dimension score, according to Hofstede, Indonesia is a country with a culture of feminism rather than masculine. Thus, it is only natural if the first hypothesis is not proven significant since most of the respondents are women, and the dominant culture of the respondents is femininity. Owusu Kwateng et al. [21] have ever examined the hypothesis among m-banking users in Pakistan and found that performance expectancy did not impact on intention to adopt m-banking. It is proven that the second hypothesis is positive and significant. According the theoretical study, effort expectancy is related to ease of use [35, 9, 20]. The expectation of the application ease of use causes someone to be interested in using the mobile banking application because it will fulfill his expectations regarding the ease of transaction. If technology, in this case, is m-banking not easy to use, users will not like to use it [19]. The proof of this hypothesis can also be explained by the fact that the majority of respondents are generation Y (58.4%). They have an undergraduate degree (54.7%) and master's degree (21.2%) and work in Jakarta (73.7%), where the profile of respondents describes people who are very concerned about the efficiency in transactions and expect easiness in m-banking using. The third hypothesis is not proved to be significantly related to the fact that users use m-banking because it is voluntary. In using mobile banking, they are not driven by others' expectations or influenced by others because they have been able to assess and feel the usefulness of m-banking, especially in the context of the financial transactions efficiently [19]. The majority of this study's respondents are domiciled in Jakarta (62.8%) and work in Jakarta (73.7%). Living and working in a metropolitan city like Jakarta, individualistic is higher than collectivistic relationships. So that one's intention to use mobile banking is driven by self-interest rather than the influence of the social environment. Moreover, this study's respondents are dominated by millennial age groups, or at least generation Y (21 to 30 years old) by 58.4%. The generation is more individual and independent than the older generation. 64.2% of respondents work as Jakarta employees, 54.7% have an undergraduate background, and 21.2% are master. Work experience in Jakarta and their undergraduate and master's educational knowledge has enabled them to provide their assessment of the benefits and efficiency of using mobile banking in financial transactions. Owusu Kwateng et al. [21] have ever examined the hypothesis among m-banking users in Pakistan and found that social influence did not intend to adopt m-banking. Raza et al. [24] also examined the hypothesis among m-banking users in Islamic banks of Pakistan. They found that the social influence factor did not influence intention to use m-banking. Gupta and Arora [11] also found that social influences have a weak or insignificant predictor of behavioral intention to use m-payment in India.

The fourth hypothesis is proven significant. As the majority of respondents are generation Y (58.4%), with undergraduate (54.7%) and master's education background (21.2%) and work in Jakarta (73.7%), mobile devices and internet access are something they must have, and they have it. Their mobile and internet devices need to help or simplify their work. From their profile, it appears that they will not difficult to use or operation of m-banking. They realized that the availability of m-banking much helped their efficiency in conducting various financial transactions. Mobile has helped all transactions to be efficient now. The availability of applications of transportation modes such as Grab and GoJek on mobile can be used to food order, transportation order, shipping, shopping, and various other business deals. Electronic money such as OVO and Gopay has been embedded in Grab and Gojek application, and other online marketplaces, such as

tokopedia.com, having mobile banking will make it easier for consumers to charge electronic money or make online payments. Because the majority of respondents are generation Y (58.4%), with a bachelor (54.7%) and master education background (21.2%) and working in the Jakarta (73.7%) are very dependent and use Grab or Gojek daily, and shopping at the online marketplace greatly helped by the presence of mobile banking. Starting from their intention to use m-banking will continue to become a habit of using m-banking. Therefore, the fifth hypothesis is proven significantly.

6. Conclusion

The paper can be concluded that among urban, sound educated, and millennial generation in Indonesia, the effort expectancy and facilitating conditions are the stimulus of their desire to take advantage of m-banking in daily activities. Still, performance expectancy and social influencing are not. Therefore, the study proved that the first and third hypotheses are insignificant, but the second and fourth hypotheses are positive and significant. As well as the effect of intention to use on user behavior is positive and significant. M-banking in business people's view makes it easy for them to conduct financial transactions related to business matters. Thus, the use of m-banking will answer their performance expectancy, and this will motivate them to use m-banking. But for young workers, m-banking is more related to convenience than to performance—ease of doing personal financing transactions, shopping, e-wallet charging, and so on. Because most respondents are young people and urban users, it is not surprising that this study found that performance expectancy did not significantly influence behavior intention to use m-banking. This research shows that in a society with a collectivistic country culture, it does not necessarily prove that social pressure will influence people to use m-banking. It is especially true among young people of generations Y and Z, who have at least shown a change in the direction of culture to be individualistically oriented compared to the previous generation. Differences in rural and urban communities also cannot generalize cultural orientation. Rural communities are more collectivistic than in urban communities. In contrast, urban people tend to be individualistic compared to rural communities. This research involves mostly young people and urban users, so it is not surprising that social influence does not significantly influence behavioral intention to use m-banking.

7. Limitations and future research directions

This paper has a limitation. The first limitation is that the majority of respondents are a woman, and it is assumed that make the performance expectancy does not influence the intention to use. The Indonesia feminity cultural dimension is assumed as another factor. The recommendation for future research includes cultural aspects as a moderating variable of the UTAUT model. Another suggestion is to conduct a comparative study of the UTAUT model among different cultures or countries. The second limitation is that social influence does not influence the intention to use M-banking. It shows that even Indonesian has a collectivistic culture, social pressure does not change the plan to use. Interpretation of the result, it may be because the majority of the respondents are the millennial generation, and they are more individual than the prior generation. Again, the recommendation for future research adds a cultural dimension to the UTAUT model's moderating variable.

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