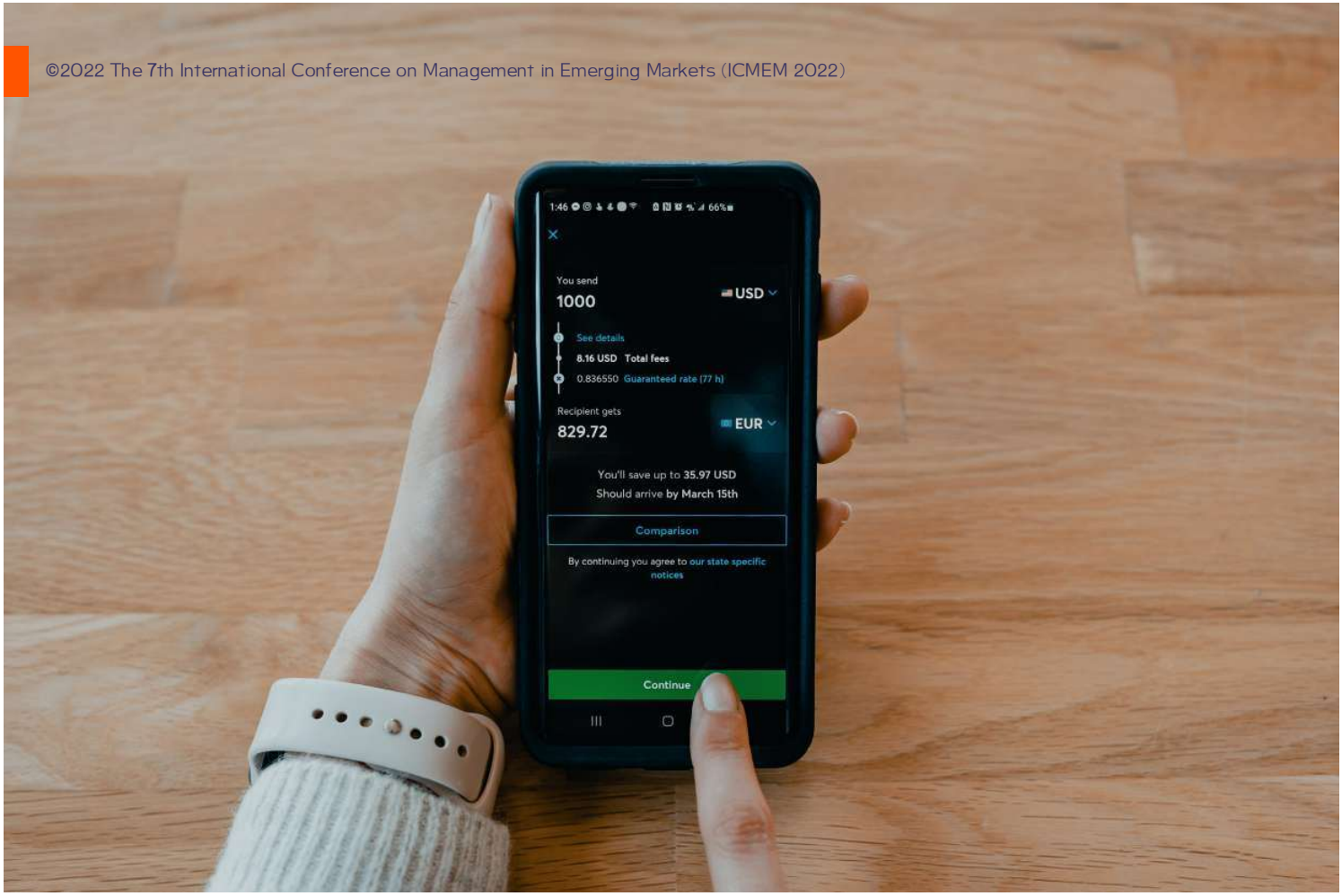

Paper 66

The mobile banking use behavior among middle-aged consumers: An application of UTAUT2

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Abstract - **The pandemic has forced people to use cashless payments more often to reduce physical contact with other people. However, middle age has several considerations for using this technology. This study seeks to ascertain the effect of performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, habit, and perceived risk on behavioral intention and mobile banking use behavior among middle age. This quantitative study surveyed 187 middle age (aged 44-60 years old) spread throughout Indonesia. The data analysis technique used is the Partial Least Square (PLS) method. The results showed that effort expectancy, social influence, price value, and habit significantly influence behavioral intention. Furthermore, behavioral intention also affects the use behavior variable.**

Keywords - **Behavioral intention, effort expectancy, facilitating conditions, habit, hedonic motivation, perceived risk, performance expectancy, price value, social influence, use behavior**

I. INTRODUCTION

Rapid technological advances have made it easier for humans to carry out their activities and make technology a vital part of human life. However, sometimes this technological development is not always accepted by all generations. Yang and Shih [1] stated that age affects individuals in embracing technology. Digital development and the movement of different events shaped each generation according to their time [2]. Prensky [3] also says that an individual's background and experience influence their thought processes. Therefore, there is a significant difference between the digital native generation and the digital immigrants. Digital natives were born when there was already digital technology in their early life, so we can assume they were technology savvy. Digital immigrants were born when there was no digital technology yet and are assumed to usually have some difficulties with technology [3]. For the digital native generation, technological development may not be a problem because they are accustomed to using technology. However, this does not necessarily apply to the middle age who are digital immigrants. According to WHO, middle-aged are those aged 44-60 years. Indonesia has 35% of the total population [4,5]. Since the development of digital technology in Indonesia has only begun from the 1990s until the early 2000s, we define Indonesian digital immigrants are those born before the 1990s. People born before the 1990s usually are more difficult to accept the use of technology.

According to Vodanovich et al. [6], although many generations of digital immigrants have transformed into users who are proficient in digital technology, their attitude towards technology is different from those of the digital native. For example, the digital native tends to be more interested in social media technology. Meanwhile, digital immigrants rarely use social media to socialize or build social relationships. Most of them prefer face-to-face interaction with the other person [7]. Therefore, we can assume that the behavior of using technology in each generation is different. Venkatesh et al. [8] defined use behavior as the frequency of using technology. From the data above, the frequency of digital natives using social media technology is higher than that of the digital immigrant.

One of the applications created to ease transaction activity is mobile banking. The use of mobile banking applications has become increasingly popular. However, the application has not been optimally utilized by digital immigrants. According to research by Farzin et al. [10], the majority of mobile banking users in Iran come from those aged 21-30 years and the least from those aged 50 years and over. Research conducted by Saparudin et al. [11] of mobile banking users in Indonesia are also dominated by those aged 20-30 years (42.4%), followed by those aged 31-40 years (39.1%), those aged 41-50 years (14 .8%), and the least of them are over 50 years old (3.7%). This data shows that the number of mobile banking users among the middle age is much less than those who are relatively younger.

To improve mobile banking acceptance among middle age, the banking industry must increase their intention to use the service. Given that mobile banking is a technology-based financial system, a process is needed so that users can be sure to accept and continue using this technology. Therefore, it is necessary to identify factors influencing a person's intention to continue using mobile banking (behavioral intention).

Many researchers have developed the acceptance model of technology, one of which is the Unified Theory of

Acceptance and Use of Technology (UTAUT2) developed by Venkatesh et al. [8]. This model is an extension of the UTAUT model developed by Venkatesh et al. [9] by adding three new variables. According to the UTAUT2 model, behavioral intention is influenced by performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit.

Performance expectations are characterized by the level of benefits from using technology for users in carrying out certain activities [9]. Performance expectancy in this study refers to the extent to which individuals have confidence that the mobile banking services usage will benefit in conducting transaction activities. If the users believe the technology usage can improve their performance, their intention to continue using technology will also increase.

Several researchers have also proven that performance expectancy affects behavioral intention to use mobile banking [10, 12, 13]. Venkatesh et al. [9] also defined effort expectancy as the convenience of technology. The possibility to continue using mobile banking will be raised if the system is user-friendly. To improve mobile banking acceptance among middle age, the banking industry must increase their intention to use the service. Given that mobile banking is a technology-based financial system, a process is needed so that users can be sure to accept and continue using this technology. Therefore, it is necessary to identify factors influencing a person's intention to continue using mobile banking (behavioral intention). We proposed the research framework as follows:

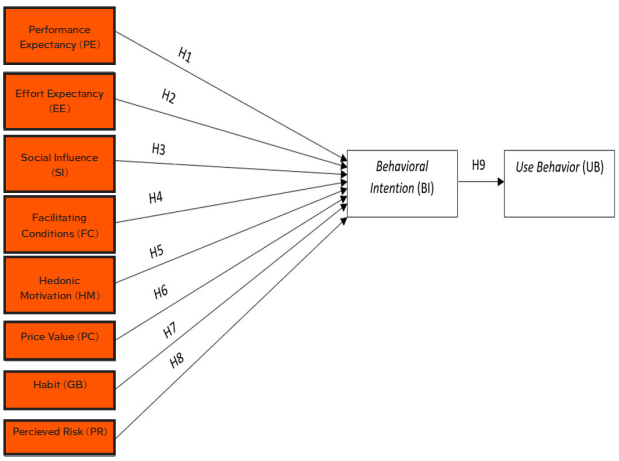

Figure 1. Research Framework

II. METHODOLOGY

The population in this study is the middle age group (aged 44-60 years at the time of the research) who use mobile banking in Indonesia. The sample was determined by the purposive sampling method. Respondent criteria used are the middle age group aged 44-60 years, have used mobile banking at least 2 times for transaction activities, and domiciled in Indonesia.

The measurement of all variables in this study refers to Venkatesh et al. [8, 9] except for the measurement of the perceived risk variable which refers to Featherman and Pavlou [14].

The performance expectancy variable is related to the extent to which individuals have confidence that using mobile banking will provide benefits to conducting transaction activities [9]. We measured performance expectancy using three indicators. One example of the indicator is "Mobile banking is useful in carrying out various transaction activities."

The measurement of the effort expectancy variable in this study uses four indicators, one example of which is "The mobile banking system is easy to use." One example of an indicator to measure the social influence variable is "Users get suggestions from people to use mobile banking."

Facilitating conditions in this study relate to the organizational infrastructure and technical support available to individuals when using mobile banking. One example of an indicator of facilitating conditions is "Users have a fast internet connection to use mobile banking."

The indicators used to measure the price value variable in this study refer to Venkatesh et al. [8]. An example of an indicator item is: "Users feel that mobile banking has provided the best service for the cost."

Perceived risk in this study refers to the definition of Featherman and Pavlou [14], namely the uncertainty felt by users regarding the negative effects of using mobile banking. The measurement of the perceived risk variable uses six indicator items. One example of an indicator item used is "A hacker might take over the user's bank account if the user uses mobile banking."

Behavioral intention shows a person's desire to continue using mobile banking. A sample indicator used to measure the behavioral intention variable is "Users plan to continue using mobile banking in the future."

The use behavior variable is interpreted as the frequency of using mobile banking. Indicators to measure use behavior include "Users often use mobile banking to perform banking activities."

The data that has been collected is then processed using PLS.

III. RESULTS

A. Respondents' Profile

The number of samples collected in this study is 187 respondents. Most of the respondents are male, well-educated, entrepreneurs, and have income > Rp. 15,000.000.

Table 1 - Respondents' Profile

		Total	%
Sex	Male	102	54.5%
	Female	85	44.5%
Education	Junior high school	9	4.8%
	High School	67	35.8%
	Undergraduate	111	59.4%
Occupation	Housewife	21	11.2%
	Private employees	34	18.2%
	Government employees	19	10.2%
	Professional (doctor, lecturer, lawyer, etc.)	29	15.5%
	Retired	3	1.6%
	Police officer	2	1.1%
	Entrepreneur	79	42.2%

		Total	%
Income	< Rp 4.500.000	11	5.9%
	Rp 4.500.001 - Rp 10.000.000	24	12.8%
	Rp 10.000.001 - Rp 15.000.000	66	35.3%
	> Rp 15.000.000	86	46%

B. Outer Model

The results of the evaluation of the outer model in this study can be seen in Figure 2 below:

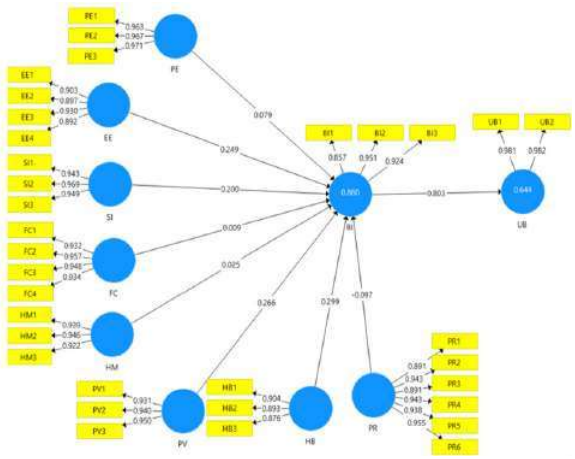

Figure 2. Outer Model

Table 2 - Average Variance Extraction

Variable	AVE
PE	0.936
EE	0.820
SI	0.910
FC	0.889
HM	0.875
PV	0.884
HB	0.794
PR	0.860
BI	0.831
UB	0.963

Table 1 shows that all variables in this study have an Average Variance Extraction (AVE) value above 0.5. This means that all variables in this study are said to have met the requirements of the convergent validity test.

Discriminant validity was assessed using the Fornell-Larcker criterion. This method is done by comparing the AVE root value of each variable with the correlation between other variables in the research model (Table 2). If the AVE root value of each variable is greater than the correlation value between the variables and other variables in the model, it indicates good discriminant validity.

Table 3 - Fornell Larcker Criterion

	BI	EE	FC	HB	HM	PE	PR	PV	SI	UB
BI	0.912									
EE	0.844	0.906								
FC	0.767	0.876	0.943							
HB	0.882	0.850	0.747	0.891						
HM	0.817	0.903	0.882	0.835	0.936					
PE	0.755	0.796	0.843	0.711	0.781	0.967				
PR	0.704	0.748	0.842	0.709	0.789	0.801	0.927			
PV	0.825	0.697	0.593	0.830	0.698	0.620	0.600	0.940		
SI	0.747	0.679	0.762	0.680	0.698	0.758	0.768	0.622	0.954	
UB	0.803	0.632	0.527	0.802	0.621	0.585	0.554	0.912	0.581	0.981

Reliability examination is performed by evaluating the value of composite reliability (CR) and Cronbach's alpha. Each indicator is reliable if the composite reliability value ranges from 0.6 to 0.7 and the Cronbach alpha value is above 0.7 [15].

Table 4 - Reability Test

	Cronbach's Alpha	Composite Reliability
BI	0.897	0.936
EE	0.927	0.948
FC	0.958	0.970
HB	0.870	0.920
HM	0.929	0.955
PE	0.966	0.978
PR	0.967	0.974
PV	0.934	0.958
SI	0.950	0.968
UB	0.961	0.981

Table 3 displays that all variables in this study have Cronbach's alpha and composite reliability values above 0.7, which means that all variables are reliable.

C. Inner Model

This study used two steps to evaluate the inner model. The first step was checking whether there was collinearity between the variables. The second step was measuring the predictive ability of the model. Figure 3 represents the evaluation of the inner model.

The data processing results showed that all statement items from each variable have a Variance Inflation Factor (VIF) value below 10, which means there is no collinearity between the variables in this study.

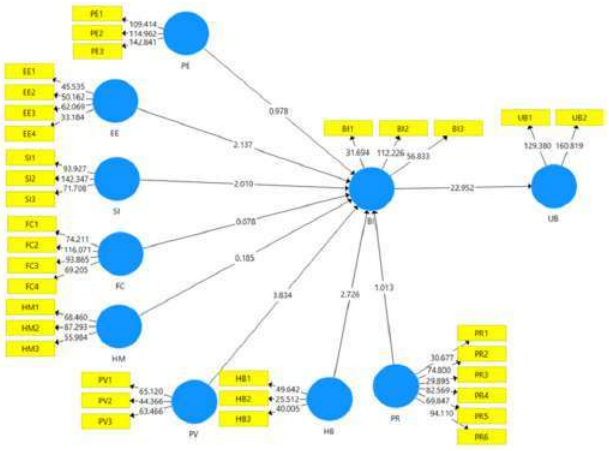

Figure 3. Inner Model

The coefficient of determination is used to evaluate the magnitude of the endogenous variables, namely differentiation, cost leadership, and business performance which can be explained by exogenous variables, namely, market orientation. The results of the R square are displayed in table 4.

Table 5 - R-Square

Variable	R^2
BI	0.860
UB	0.644

Table 5. Path Coefficients

	BI	EE	FC	HB	HM	PE	PR	PV	SI	UB
BI										0.803
EE	0.249									
FC	0.009									
HB	0.299									
HM	0.025									
PE	0.079									
PR	-0.097									
PV	0.266									
SI	0.200									
UB										

Table 5 demonstrates that all path coefficient values are positive, except for PR (-0.097), meaning that increasing exogenous variables can increase endogenous variables. The path coefficient of PR (perceived risk) variables towards BI (behavior intention) is negative at -0.097 indicating that an increase in perceived risk will decrease the behavior intention.

Hypothesis testing was carried out using a bootstrapping procedure and considering the t-statistics value generated from each relationship between variables. This study uses one-tailed and two-tailed hypothesis testing. Eight hypotheses use one-tailed (H1, H2, H4, H5, H6, H7, H8, and H9) and one hypothesis uses two-tailed (H3) because there is no certainty of the direction of the relationship. For the one-tailed hypothesis test, if the t-statistics value is > 1.64 then the hypothesis in this study can be accepted, and vice versa. Meanwhile, for the two-tailed hypothesis test, the hypothesis will be accepted if the t-statistics value is > 1.96. Table 6 shows the results of hypothesis testing in this study.

Table 6 - Hypotheses Testing

Hypotheses	Original Sample (O)	T-Statistics	P Values	Result
PE → BI	0.079	0.978	0.164	Rejected
EE → BI	0.249	2,137	0.017	Accepted
SI → BI	0.200	2,010	0.022	Accepted
FC → BI	0.009	0.078	0.469	Rejected
HM → BI	0.025	0.185	0.427	Rejected
PV → BI	0.266	3,834	0.000	Accepted
HB → BI	0.299	2,726	0.003	Accepted
PR → BI	-0.097	1,013	0.156	Rejected
BI → UB	0.803	22,952	0.000	Accepted

IV. DISCUSSION

The hypothesis test shows that performance expectancy does not affect behavioral intention. Performance expectancy is not strong enough to influence behavioral intention among middle-aged mobile banking users in Indonesia. This result is different from previous studies' results (16, 12, 13; 10), which state that performance expectancy affects behavioral intention. However, these results were following the results of the study by Kwateng et al. [17], and Wei et al. [18] that performance expectancy does not affect behavioral intention. The benefits offered by mobile banking services are not a driving factor that affects respondents' intention to continue using mobile banking. It could be because middle age mobile banking users in Indonesia have not optimized the use of the mobile banking system. The absence of the effect of performance expectancy on behavioral intention can also be caused because mobile banking is not the first payment system introduced to the public in Indonesia. Before the creation of mobile banking, the banking industry had introduced internet banking to the public. Therefore, the public is more familiar with the use and benefits of internet banking than mobile banking. Mobile banking has not yet become a system that plays a direct role in middle-aged activities, especially in transaction activities.

Effort expectancy has a positive and significant effect on behavioral intention. The easier it is to use mobile banking, the higher the middle-aged consumers' intention to keep using the technology. Overall, the high average value of respondents' answers regarding the effort expectancy variable implied that most respondents find it easy to use the mobile banking system. The level of convenience felt by consumers to use mobile banking is essential and will be considered by consumers to decide whether to continue using the application or not. Since the respondents in this study were digital immigrants, they are assumed to have some difficulties with technology. As a result, the convenience factor is a vital consideration for middle age mobile banking users in Indonesia. The results are in line with research conducted by [10,13,19] which states that effort expectancy positively affects behavioral intention. Purwanto and Mutahar [20] also said that customers need technology that is easy to use without much effort.

Social influence manifested in opinions and recommendations from the people around them will influence the intention of middle age groups in Indonesia to continue using this technology. Individuals tend to continue using mobile banking when the people around them (such as friends or relatives) have already used it and shared their experiences. This given experience will indirectly affect and encourage the individual. This encouragement will increase the intention to continue using the technology. This result is aligned with Hussain et al. [21], who stated that customers feel confident when they know that their friends and family are already using mobile banking. Customers will also be more likely to use mobile banking than go to the bank when the people around them are doing the same.

Most respondents stated that they feel pressure and social influence from the surrounding environment to use mobile banking. The high perceived social pressure will become the impetus for them to continue using mobile banking. The results are also in line with prior research [10,16,22] that social influence has a positive effect on behavioral intention.

Hedonic motivation is not strong enough to change behavioral intention among middle-aged mobile banking users in Indonesia. These results are not following the results of previous studies [10,12,16,23], which state that hedonic motivation affects behavioral intention. However, the results are parallel to the results of Merhi et al. [24] and Hussain et al. [21], which confirmed that hedonic motivation does not affect behavioral intention. The element of pleasure derived from mobile banking usage is not a driving factor influencing the middle age groups in Indonesia to continue to use mobile banking. Mobile banking is a fintech application created to help financial affairs, not to provide elements of fun or entertainment, such as online game applications. In fintech applications, consumers pay more attention to the benefits of helping them transact. Therefore, the fun element is not a consideration to continue using mobile banking. Consumers will still intend to continue using mobile banking even though the technology does not give pleasure for them.

Price value has a positive and significant effect on behavioral intention. The result shows that the monetary costs incurred and the benefits derived from mobile banking usage are important considerations for middle age groups in Indonesia. The results of this study are in agreement with the research of Thaker et al. [13], Farzin et al. [10], and Barata and Coelho [25] which stated that price value has a positive and significant effect on behavioral intention. Most respondents feel that the benefits of using mobile banking are higher compared to the costs. When using mobile banking, sometimes consumers will be charged a service fee (for example, to transfer to another bank). However, respondents feel the costs are relatively small compared to the benefits. With mobile banking, respondents do not need to go to the bank and queue. This method is beneficial and saves their time.

Hypothesis testing shows that habit has a positive and significant effect on behavioral intention. Respondents' answers regarding the habit variable show that most of the middle age groups in Indonesia tend to behave

spontaneously. They use mobile banking as a result of learning or experience. The results of this study are also following prior research [10,13,16,26] which state that habit has a positive and significant effect on behavioral intention. Most of the middle age groups in Indonesia use mobile banking 4-6 times per month. The high frequency of using mobile banking causes the use of technology to become a habit and will ultimately affect their intention to continue using it. According to Ramírez-Correa et al. [27], habits will also increase the ease of use and strengthen a person's intention to continue using the technology. Thus, if individuals are accustomed to using mobile banking, it will be easier for them to operate the technology and in the end, their intention to continue using mobile banking will also increase.

Based on the results of hypothesis testing, the perceived risk does not influence behavioral intention in middle age mobile banking users in Indonesia. The results of this study contradict the earlier research [12,26,28], which stated that perceived risk affects behavioral intention. On the other hand, the results are in line with the results of research by Al-Saedi et al. [29], Rattanaburi and Vongurai [30], and Widyanto et al. (2021), which also state that perceived risk does not affect behavioral intention. The uncertainty regarding the negative effects of using mobile banking does not determine respondents' intention to continue using mobile banking. The high perceived risk when using mobile banking does not reduce their intention to continue using mobile banking because it is so practical and efficient. If respondents want their transactions to be guaranteed safe, they must go to the bank and process transactions through bank tellers. However, it will consume more time compared to using mobile banking. Entrepreneurs often have to carry out banking transactions. If in one day they carry out banking transactions more than once, then to ensure the transactions are safe, they have to go back and forth to the ATM or bank, which is very inefficient and a waste of time. The majority of respondents feel that the use of mobile banking can increase their productivity. Therefore, although most respondents are worried that mobile banking can put them at risk, they still intend to continue using it.

The behavioral intention variable has a positive and significant effect on the user behavior variable. The behavior of middle age groups in Indonesia to use mobile banking is indicated by their intention to continue using the technology. When consumers feel the positive impact of using mobile banking on their lives, they will intend to continue to use the technology. This intention will affect consumer behavior in using the technology, which is shown by the frequency of users using technology. In this study, the majority of respondents intend to continue using mobile banking and this has an impact on the high level of mobile banking usage.

V. CONCLUSION

This study proves that four variables determine consumers' intention to continue using mobile banking. These variables include effort expectancy, social influence, price value, and habit. This result strengthens prior research [10,13,16,19,22,25,27] The effort expectancy variable in this study has a positive and significant influence on behavioral intention. The convenience level of using mobile banking will affect middle-aged consumers' intention to continue using the technology. The level of convenience is certainly an important consideration because, at the age of 44-60 years, consumers are not as skilled as the digital native generation in using technology. Most respondents use mobile banking because they feel pressure and social influence from the surrounding environment. Opinions and recommendations from people around them will influence respondents to continue using mobile banking. The price value variable also affects behavioral intention [10,13,25]. The relationship between the monetary costs incurred and the benefits derived from using mobile banking is a crucial consideration for middle age groups in Indonesia. Habit also affects behavioral intention [27]. Most of the middle age in Indonesia tend to behave spontaneously. They use mobile banking because of learning outcomes or experiences. However, the user's habit of using mobile banking depends on other factors. Individuals are accustomed to using mobile banking because the individual feels the positive impact of using the technology. The behavioral intention variable in this study also positively and significantly influences user behavior. The frequency of users using mobile banking will be higher if users also have the intention to continue utilizing the technology.

The result of this study provides several managerial implications. First, the banking industry may add new features that make it easier for users to use mobile banking services, such as fingerprint or iris scanner features. Therefore, users can use mobile banking easily, and their intention to continue using these technologies can increase. Second, because social influence is essential, banking can provide additional benefits for users who recommend or invite new users.

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