CONSUMER ACCEPTANCE OF DIGITAL BANK IN INDONESIA: TECHNOLOGY ACCEPTANCE MODEL

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Abstract - A solid development of digital technology has given a huge effect in banking industry throughout the world, including Indonesia. It is observed that Indonesian banks are now doing a major expansion of digitalization. In addition to that, the latest technology has led several banks in Indonesia to establish what is called by digital bank. In this study, digital bank refers to a bank who possess the same operating principles as traditional bank, yet it operates purely online without any physical branch. The success of digital bank is determined by the willingness of customer to accept it. Using Technology Acceptance Model (TAM), this study aims to measure several factors affecting customer acceptance toward one of a digital bank in Indonesia called "Jenius". Research into this field will improve understanding about what belief lead Indonesian customer to use this digital bank and how these beliefs influence the actual usage. A model was tested using a survey with Jenius users (n=127). The questions were tested using validity and reliability test. The next method used was regression analysis and followed by correlation analysis. The result of this study shows that perceived usefulness and perceived enjoyment were the main factors determining user acceptance of Jenius as a digital bank in Indonesia.

Keywords: Digital bank, Consumer behavior, Technology Acceptance Model

I. INTRODUCTION

The rise of digital technology development has brought an immense effect toward banking industry throughout the world. Moreover, Singh et. al (2010) mentioned that the wireless technologyalong with an immense penetration of mobile phone have successfully generated enormous business opportunities in banking industry, including a wireless operation concerning communications, transactions, buying, and so on. Consequently, given this phenomenon, customer banking habits are also continuously evolving, and they are now having more options for how and where they bank (PwC, 2018). As for Indonesia, according to McKinsey (2019), digital technology will have a continuous effect in the transformation of banking ecosystem in the country. Additionally, digital technology is expected to show a significant development and it is perceived to be critical in retaining bank customers and fostering growth for many financial organizations.With this in mind, it can be seen that Indonesian banks are now doing a major expansion of a digitalization. It is supported by the survey result from PwC in 2018, showing that there is about 66% of banks in Indonesia that have constructed their digital strategy as part of their overall corporate strategy.

In terms of customer digital adoption, a survey brought by McKinsey in 2019, suggested that Indonesia is one of the fastest to adopt banking digitalization among Asian countries, showing a better result compared to China. In addition to that, they also pointed out that the way Indonesian customer consume digital content is also changing. Many of them, especially those who live in the cities, are using two to three different digital offerings from banks. Furthermore, the study reveals that Indonesia's customer behavior in adopting digital service has shown different patterns compared to other Asian countries. It is found that the level of customer loyalty toward these services tend to be low in other countries, however, the result seems to be contradictory in Indonesia, suggesting a higher level of customer loyalty.

Nowadays, bank offers various form of digital offerings for its customers. This includes mobile banking, internet banking, SMS banking, electronic banking, and so on. However, the latest technology has allowed several banks in Indonesia to establish what is called by digital bank or virtual bank. In this context, digital bank refers to a bank who possess the same operating principles with traditional bank, yet it does not own a physical branch or office. The operation of the bank (including opening an account, saving money, et cetera), is fully done through a digital platform which is mobile application. The introduction of digital bank in Indonesia was brought by one of Indonesia's traditional bank called BTPN, who established a new business unit of digital bank called Jenius in 2016. As of this year, there are only two players (including Jenius by BTPN and Digibank by DBS) of digital bank in Indonesia.

Being introduced since less than three years ago, this type of innovation is still considered as new to Indonesian society. While some people are confident in adopting this service, some still prefer traditional bank as they think that physical branches provide them a better customer experience. Based on the assessment of Indonesian bankers, offline branches generate the largest percentage of experience (70%) while digital branches still require extra works to improve this (PwC, 2018). In addition to that, people

also think that digital bank is somewhat risky as they don't have a physical branch that customer can visit.
Due to its infancy, customer reactions toward digital bank, particularly Jenius, varies. According to Taman Kosong (2018), customer stated that they have known about Jenius since the first time it was launched. It is mentioned that Jenius has successfully gained awareness among Indonesian youngsters as a result of their strong marketing effort especially in social media. However, customer admitted that the product seems to be less attractive mainly because they have lack of understanding about digital banking.

One of the factor to determine the success of the innovation of digital bank is the willingness of customer to accept or to adopt it. In information technology literature, there has been several models used to explain about the use of innovation. This includes, UTAUT (Unified Theory of Acceptance and Usage of Technology) (Venkatesh et. al, 2003), TRA (Theory of Reasoned Action) (Fishbein, 1975), TPB (Theory of Planned Behavior) (Ajzen, 1985), and several others like TAM (Technology Acceptance Model) (Davis, 1989) and DOI (Diffusion of Innovation) (Rogers, 1962). Among these theories, Technology Acceptance Model (TAM) has developed as the most popular model (Chau and Hu 2001; Schierz et. al, 2010). Moreover, Yoon and Kim (2007) mentioned that TAM is appropriate to be applied in a broad range of research questions. It is believed that even if TAM was initially made to forecast the use of IT system in the workplace, TAM variables can be implemented to speculate customer acceptance in different settings. For example, TAM has been used to assess the use of system (Gefen& Straub, 1997; Klopping& McKinney, 2004; Jap, 2017), the adoption of e-commerce (McCloskey, 2004; Jap, 2017), the use of e-portfolio system (Shroff, Deneen, & Ng, 2011; Jap 2017), mobile payments (Schierz et. al, 2010), online games (Jap, 2017), internet banking (Eriksson et. al, 2005), and more other different studies.

According to Kusumah (2017), TAM is adopted from TRA (Theory of Reasoned Action) which assumes that one's reaction or perception toward something will determine the attitude and behavior of the person.The original constructs of TAM by Davis et al. (1989) are Perceived Ease of Useand Perceived Usefulness. It is defined that Perceived Ease of Use is "the degree to which a person believes that using a particular system would be free of effort", while Perceived Usefulness quoted as "the degree to which a person believes that using particular system would enhance his or her job performance".In 2000, Venkatesh and Davis presented the new version of TAM named as TAM2 in which there were new variables added to the model. With original TAM as the core construct, TAM2 took into consideration additional factors including social influence processes (consist of subjective norm, voluntariness, and image) and cognitive instrumental processes (consist of job relevance, output quality, result demonstrability, and perceived ease of use). However, not only using its original variables, researchers also expanded the model with another variable according to their own research questions, generated mainly through a focus group discussion with expert in particular area or with customers and users. Referring toPikkareinen (2004), even though TAM has been implemented extensively in different context of studies, the evidence shows that TAM is a valid and reliable model in measuring customer acceptance and usage toward information system. It is also revealed that compared to TRA(Theory of Reasoned Action) and TPB (Theory of Planned Behavior), TAM proved to be a better explanatory of user attitude toward information system. (Mathieson, 1991; Pikkareinen, 2004).Moreover, it is mentioned that the TAM studies have consistently exhibited a notable number of variance, showing approximately 40 percent in willingness to use and behavior.
The objective of this study is to reveal what factors influence the adoption of digital bank namely Jenius in Indonesia. The findings of this study will help Jenius in understanding the behavior of their users. In addition, the result will provide information for potential new digital banker in how they should create their business model and what aspect they should emphasize in their product.

II. RESEARCH MODEL

According to customer's perception and opinion about digital bank particularly Jenius, it is found that several factors influencing their decision to adopt this technology are similar with the model formulated by Pikkareinen et. al in 2014 in explaining acceptance toward online banking system in Finland. Figure 1 demonstrates the model comprising of six variables.

Referring to diffusion theory, innovations are to be accepted by users only if they give new advantage as compared to the current solutions available (Rogers, 1995; Schierz et. al, 2010). In terms of TAM, this can be viewed as Perceived Usefulness variable (Schierz et. al, 2010). Therefore, this study expects that there is a positive relationship between Perceived Usefulness (PU) and intention to use Jenius digital bank. (H1)

It is noted that user perception toward ease of use is what really important rather than the actual system attribute (Venkatesh and Davis 1996; Schierz, 2010). Moreover, Pikkareinen (2004) mentioned that innovation, such as mobile applications is easier to be accepted when it is easy to be used. Therefore, this study expects that there is a positive relationship between Perceived Ease of Use (PEOU) and intention to use Jenius digital bank. (H2)

Jenius was made to target Indonesian millennials to be more enjoyed in using bank service without having to go to physical branch. According to Ramayah et. al (2003), enjoyment can be reflected as "feeling of joy, elation, and pleasure", while Davis et. al in 1992 suggested that it is "the extent to which using a computer is perceived to be enjoyable in its own right". Moreover, in 1999, Teo et. al also revealed that perceived enjoyment positively affects intention to use computer. Thus, this study expects that there is a positive relationship betweenPerceived Enjoyment (PE) and intention to use Jenius digital bank. (H3)

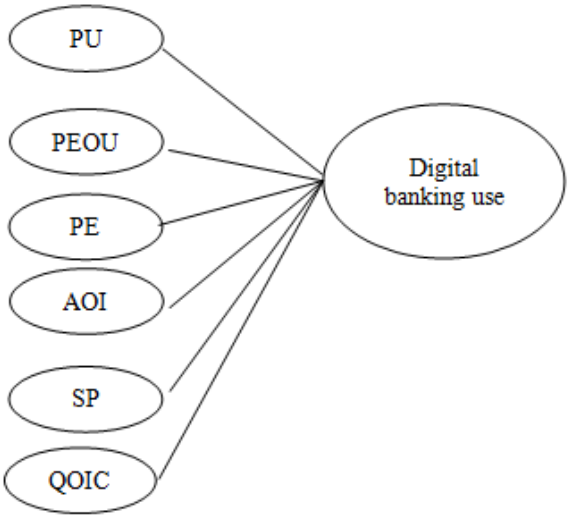


Figure 1. Research Model

Many of potential consumer are aware about Jenius, yet it is admitted that low level of knowledge and information about the bank is what hinder them from using it. Additionally, Pikkareinen et. al (2004) pointed out that the amount of information about online banking possessed by consumer is said to be the main aspect affecting their adoption. Thus, this study expects that there is a positive relationship between Amount of Information (AOI) and intention to use Jenius digital bank. (H4)

As Jenius operated purely online, people find that it is much riskier compared to the conventional bank with an offline branch. In 1999, Sathye stated that perceived security and privacy has become a significant hindrance to the acceptance of online banking in Australia (Pikkareinen et al, 2004). Privacy and security itself was explained by Lallmahamood (2007) asconsumer's view about the protection against security risks and personal data confidentiality in an online setting. Additionally, Roboff and Charles (1998) stated that even though consumers have a high level of trust toward their bank, the level of trust toward technology is still appeared to be low (Pikkareinen et al, 2004). Thus, this study expects that there is a positive relationship between Security and Privacy (SP) and intention to use Jenius digital bank (H5).

In their research, Pikkareinen et. al added Quality of Internet Connection in measuring the acceptance toward online banking. It is explained that good internet connectionis essential in order to access the digital bank itself. Thus, this study expects that there is a positive relationship between Quality of Internet Connection (QOIC) and intention to use Jenius digital bank (H6).

III. RESEARCH METHODOLOGY

In order to collect the data, researchers distributed online questionnaires to Jenius users in Indonesia. The questionnaires were sent through group chats in an online chat platform LINE. The sample collected was the total of 128 respondents. However, researchers used only 127 samples as it is found that one respondent did not fill all the questions properly. The questionnairescomprised of the total of 25 questions with two to five questions to measure each variable. Respondents were also asked about several demographical data including age, gender, and income. The questions formulated were adapted from those made by Pikkareinen et. al (2004), and modified according to digital banking context. The questionnaires used five-point likert scale with number 1 indicating "strongly disagree" and 5 indicating "strongly agree". Once the data collected, all the questions were then tested using validity test and reliability test in order to know which question that is not compatible in measuring each variable. Following that, researchers then used regression analysis and correlation analysis to figure out the final result of the study.

IV. RESULT

According to the results, out of 128 responses, it is found that the respondents aged from 17-26 years old. The majority of it was from age 17-21 years old accounted as 81.9% of the total respondents. The dispersion of respondents based on gender was 55.9% and 44.1% for female and male respectively. The majority of them (43.3%) earn 500,001 - 2,000,000 Rupiah monthly, followed by 2,000,000 - 4,000,000 Rupiah (33.9%), and the rest of 22.8% collect both higher and lower than those range per month.

Validity and Reliability Test

Having collected the data, validity and reliability test was performed in order to eliminate the question that does not fit the criteria. The value of r-table used here was n = 127 (df = n-2), hence it is known that the value of r-table is 0,2278. If the value of Pearson Correlation higher than the r-table, it can be said that the question is valid to use (Kusumah, 2017). Referring to the results, all the questions used in the questionnaire have shown a greater Pearson Correlation than 0,2278. For PEOU, each question

possessed 0.765, 0.821, 0.824, 0.786, 0.674, respectively. As for PU, the pearson correlation was 0.799, 0.798, 0.789, 0.756, 0.801. This then followed by SP with each question showing 0.821, 0.872, 0.870, 0.836, 0.803 pearson correlation. The next variable tested was AOI with the result of 0.948 and 0.945. QOI was also valid with 0.894, 0.923, and 0.856 for each of its questions. Lastly, questions measuring USE were also tested and the result shows that its pearson correlation was 0.874, 0.907, 0.602. Thus, it can be concluded that all the questions are valid and should be tested for its reliability. According to Pikkareinen (2004), if the Cronbach Alpha of each question is greater than 0.7-0.8, than it can be concluded that the question is reliable. The result of the reliability test showed that all the six variable has a Cronbach Alpha greater than 0.7. For PU, the value of Cronbach Alpha is 0.840, PEOU (0.828), PE (0.745), SP (0.896), AOI (0.884), QOI (0.865), USE (0.709). Therefore, it can be seen that all the questions for each variable are valid and reliable. Thus, there was no question that should be eliminated in measuring the final result.

The next stage was to run a regression analysis with digital banking use as the dependent variable and all the six factors (PU, PEOU, PE, SP, AOI, QOI) as the independent variables. Regression analysis is useful to figure out how different factor influence the use of digital banking (Jenius). The result of the analysis is shown in Figure 2. It is found that there were only two variables that are statistically significant, PU (perceived usefulness)($t=4.59$, $p<0.01$) and PE (perceived enjoyment) ($t=2.73$, $p<0.01$), while the model itself was also significant at ($t=0.554$, $p<0.01$). Since the R square is 0.544, it can be said that the six variables have explained the use of digital banking (Jenius) as much as 54%.

The final phase was to perform correlation analysis to better confirm the hypotheses. The result of correlation analysis can be found in Figure 3. The final phase was to perform correlation analysis to better confirm the hypotheses. The result of correlation analysis can be found in Figure 3. It is shown that PU and PE are positively correlated with use of Jenius, showing the result of 0.695 and 0.622 respectively. Therefore, from this result, it can be concluded that H1 and H3 were validated while the rest of them were not supported according to the data gathered.

V. CONCLUSION

The model formulated by Pikkareinen et. al (2004) used in this study has shown a valuable result as it can explain the use of digital banking (54%) greater than the use of online banking itself (12%). According to the regression and correlation analysis, it is found that Perceived Usefulness (PU) and Perceived Enjoyment were the two factors that highly affects the use of digital banking (Jenius) in Indonesia. Correlation analysis has also confirmed that the two variables are positively correlated with the use of digital banking. This infers that consumers have received a great benefit from Jenius, and enjoy using this product.Thus, banks in Indonesia, especially those who wants to start opening a digital bank have to emphasize and provide consumers with a wider range of benefit of using digital bank compared to traditional bank. In addition, as most of the respondents are young adults who enjoy using technology such as mobile application, preserving their enjoyment toward it is very important. In order to do that, banks should continuously improve the quality of their application and create a seamless user interface of their apps.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin–Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.738[a]	.544	.522	.52862	.544	23.892	6	120	.000	1.958

a. Predictors: (Constant), PE, QOI, AOI, SP, PEOU, PU

b. Dependent Variable: USAGE

Figure 2. Regression Analysis

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40.058	6	6.676	23.892	.000[b]
	Residual	33.533	120	.279		
	Total	73.591	126			

a. Dependent Variable: USAGE

b. Predictors: (Constant), PE, QOI, AOI, SP, PEOU, PU

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.898	.449		-2.001	.048		
	PEOU	.102	.118	.081	.869	.387	.442	2.265
	PU	.513	.112	.436	4.599	.000	.423	2.365
	SP	.104	.100	.087	1.037	.302	.543	1.840
	AOI	.002	.079	.002	.029	.977	.596	1.678
	QOI	-.115	.078	-.098	-1.475	.143	.864	1.158
	PE	.285	.104	.259	2.732	.007	.423	2.365

a. Dependent Variable: USAGE

Figure 3. Correlation Analysis

Correlations

		PEOU	PU	SP	AOI	QOI	PE	USAGE
PEOU	Pearson Correlation	1	.682**	.519**	.544**	.171	.619**	.567**
	Sig. (2-tailed)		.000	.000	.000	.055	.000	.000
	N	127	127	127	127	127	127	127
PU	Pearson Correlation	.682**	1	.536**	.476**	.170	.670**	.695**
	Sig. (2-tailed)	.000		.000	.000	.056	.000	.000
	N	127	127	127	127	127	127	127
SP	Pearson Correlation	.519**	.536**	1	.536**	.236**	.595**	.494**
	Sig. (2-tailed)	.000	.000		.000	.007	.000	.000
	N	127	127	127	127	127	127	127
AOI	Pearson Correlation	.544**	.476**	.536**	1	.271**	.462**	.393**
	Sig. (2-tailed)	.000	.000	.000		.002	.000	.000
	N	127	127	127	127	127	127	127
QOI	Pearson Correlation	.171	.170	.236**	.271**	1	.321**	.094
	Sig. (2-tailed)	.055	.056	.007	.002		.000	.292
	N	127	127	127	127	127	127	127
PE	Pearson Correlation	.619**	.670**	.595**	.462**	.321**	1	.622**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	127	127	127	127	127	127	127
USAGE	Pearson Correlation	.567**	.695**	.494**	.393**	.094	.622**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.292	.000	
	N	127	127	127	127	127	127	127

**. Correlation is significant at the 0.01 level (2-tailed).

Research Limitations

This study used a model constructed specifically for online banking use. A group discussion with digital bank expert or an in-depth customer interview can be performed to generate new possible constructs. Moreover, the domicile of the respondents in this study was not known. As researchers live on Java island, it might be resulted in respondents being highly concentrated in Java island. As Indonesia has various different cultures, future studies might take cultural effect into consideration. Moreover, the respondents were also dominated by millennials or young adults, which mostly tech-savvy consumer. Further discovery toward older digital bank user could be taken into consideration as they are the one that are less likely to trust technology.

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