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Analyzing Indonesian Users' Perception of Highway Tap Card

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Abstract:
Technology has been an essential aspect of transportation, Indonesia has taken an important decision by turning every highway gate as a cashless transaction portal. Hence, a tap-card has been essential for Indonesian drivers. Therefore, we conducted this study with the purpose to measure the perception of Indonesian user towards highway tap-card. We utilize two constructs, perceived usefulness and perceived ease of use of the intention to use the tap card. We classify this research as quantitative descriptive analysis, tested to 100 respondents spread all over Indonesia. We used SPSS version 23 as software analysis. Our result proved that perceived usefulness and perceived ease of use significantly influence the intention to use, hence the two constructs have significant contribution toward the intention to use of the highway tap-card.

***Keywords**: Digital business, Perceived Usefulness, Perceived Ease of Use, Intention to Use.*

1. INTRODUCTION

Transportation infrastructure becomes the main thing in sustaining the country's economic activities, therefore transportation infrastructure is very important for Indonesia (Natyari, 2016). Indonesian transportation services are currently dominated by land transportation services. An increase in transaction traffic volume in all toll roads of PT. Jasa Marga (Persero) annually, from the information obtained by the author, the increase in traffic volume in 2015 was 4.9% compared to the same period in 2014 (Aditiasari, 2015). In an effort to improve transaction services at toll booths, PT. Jasa Marga (Persero) Tbk has cooperated with Bank Mandiri to implement the E-Toll Card which has been carried out in stages on all toll roads since 2009 (Yoga, 2016). Until now, in total there have been 40% of toll booths owned by PT. Jasa Marga (Persero) Tbk, which uses e-Toll cards. Jasa Marga manages a number of strategic toll roads with a total of 1012 toll booths throughout Indonesia and all of them are able to receive E-Toll Cards (Sasongko, 2014). As many as 399 substations have used the Automatic Toll Gate System (GTO), the rest are still manual (Fitri, 2016).

Technology Accepted Model (TAM) is often used to analyze the acceptance and use of an information system using two important factors namely perceived usefulness (PU) and perceived ease of use (PEU) influenced by intention to use (IU) (Pradana et al., 2019). The purpose of this study was to determine the effect of perceived usefulness and perceived ease of use on intention to use the E-Toll Card SERVICE MARGA (Study of E-Toll Users in Indonesia). This study is a quantitative study with descriptive data

analysis, the respondents examined in this study numbered 100 e-toll card users in Indonesia with incidental sampling techniques. Data collected from 12 questionnaire questions were then processed using IBM SPSS 20 with multiple linear regression data analysis techniques. The results showed that the perceived usefulness was 72.8% in the agreed category, the perceived ease of use was in the 76.9% position with the agreed category, intention to use was in the position of 75.3% with the agreed, perceived usefulness category significant effect on intention to use by 72.8%, perceived ease of use has a significant effect on intention to use by 76.9% and perceived usefulness and perceived ease of use have a significant effect on intention to use by 60,6%.

2. THEORETICAL FRAMEWORK AND RESEARCH METHOD

Management information system according to Davis (2014) is a human, computer and machine system that is integrated to present information to support the operations, management and decision-making functions in an organization. Information system for management in its stages can be described as a structure in the form of a pyramid where the lowest layer includes information for the transaction process, checks on status, etc., the next stage includes sources of information to support day-to-day management operations, the third stage includes system resources information to support tactical planning and decision making for supervision, and the peak stage includes sources of information to support planning and policy making by a higher management stage (Simon, 2014). Heizer and Render (2010) defining QFD is the process of defining customer requests and translating customer desires into ways that can be understood and implemented by each functional section. According to Ariani (2009) the background to the use of QFD is the existence of an effective marketing policy that is focused on the customer, so that it can continuously meet the needs and expectations of customers.

This research uses the technology acceptance model (TAM). It has been known as a model of user acceptance of the use of information technology systems (Hartono, 2007) TAM theory explains the relationship between the benefits of an information system and its ease of use and other constructs, such as behavior, goals, and needs (Budiarto, 2014).

2.1 Perceived Usefulness

According to Davis (1989) usefulness is the level of a person's confidence that the use of a special system will enhance its performance (Sekundera, 2006). Perceived usefulness is defined as the profitability of subjects from potential users who use certain application systems that will improve their performance (Rahmatsyah, 2011).

2.2 *Perceived Ease of Use*

According to (Hartono, 2007) perceived ease of use is defined as the extent to which one believes that using a technology will not be very complicated. Perceived ease of use is based on the extent to which prospective users expect a new system to be used free from difficulties.

2.3 *Intention to Use*

Intention is a person's tendency when that person tries to use a specific attitude. It has been explained before that intention can be measured by using subjective norms and attitudes that affect one's intention to act, whereas subjective norms are influenced by beliefs and motivations for wanting other people to be involved in it. Saragih et al. (2018).

3. METHODOLOGY, RESULT AND DISCUSSION

3.1 Research Method

The study population was Jasa Marga e-toll card users. The researcher uses the error tolerance slovin

formula (e) of 10% and a population of 12,838,203 users of e-toll card services in Indonesia (Natyari, 2016). Based on the results of these calculations, it can be seen that the sample in this study amounted to 100. Sampling in this study was conducted with nonprobability sampling. Data analysis techniques used descriptive analysis and linear regression (Pradana, 2016).

3.2 Descriptive Analysis

Descriptive analysis techniques aim to explain the overall data collected by describing and classifying into a frequency distribution table and then given an explanation. The overall respondent's response to the Perceived Usefulness (X1) variable was 2,183, while the overall expected response was 5 (the highest score) category strongly agreed x 6 (number of questions) x 100 (number of respondents) = 3,000 resulting in a 72.8% percentage. Then the variable Perceived Usefulness can be seen in the continuum line indicating the category "agree". The overall response of the respondent to the variable Perceived Ease of Use (X2) is 1,539, while the overall expected response is 5 (the highest value) category strongly agreed x 4 (number of questions) x 100 (number of respondents) = 2,000 resulting in a percentage of 76.9 %. Then the variable Perceived Ease of Use can be seen in the continuum line indicating the category of "agree" .. Overall respondent's response to the variable Intention to Use (Y) is 753, while the overall expected response is 5 (highest value) category strongly agree x 2 (number of questions) x 100 (number of respondents) = 1,000 yielded a percentage of 75.3%. Then the Intention to Use variable can be seen on the continuum line indicating the "agree" category.

3.2 Multiple Linear Regression Analysis

This analysis is to test the independent variables, which in this study are Perceived Usefulness (X1) and Perceived Ease of Use (X2) in influencing the dependent variable namely Intention to Use e-toll card (Y) in Indonesia. The results of SPSS 20 output are in the following table 1:

Table 1:Regression Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	,828	,218		3,791	,000
PU	,593	,109	,523	5,456	,000
PEOU	,325	,102	,307	3,200	,002

Sumber : *Output SPSS (Lampiran)*

Based on the output data in table 4.8, the regression equation can be obtained as follows:

$$Y = 0.828 + 0,593X_1 + 0,325X_2$$

- Based on the above equation can be interpreted as follows:
- "The constant value shows the magnitude of 0.828 which means that without the influence of the variables (X1) and (X2) or all of these variables are 0, the value of (Y) is 0.828.
- "The regression coefficient (X1) is positive at 0.593, which means that the variable (X1) has

a direct relationship with (Y) and each addition of one unit of Perceived Usefulness (X1) will affect the increase in Intention to Use (Y) by 0.593.

- "The value of the regression coefficient (X2) is positive at 0.325, which means that the variable (X2) has a direct relationship with Y and each additional unit of one Perceived Ease of Use (X2) will affect the increase in Intention to Use (Y) which is equal to 0.325.

3.3 Simultaneous Hypothesis Test (Uji F)

Table 2
ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45,739	2	22,870	74,646	,000[b]
	Residual	29,718	97	,306		
	Total	75,458	99			

Source: *Output SPSS*

Based on the table above, it can be seen the calculated F value of 74.664 with a significance of 0,000. Because the significance is smaller than 0.10, it can be concluded that Ho is rejected and Ha is accepted. That is, Perceived Usefulness and Perceived Ease of Use have a positive influence on Intention to Use on e-toll card users in Indonesia. Other than that, F_{hitung} > F_{tabel} which is 74,646 > 2,36 where F_{tabel} can be found on F *table statistic* contained in the attachment with significance 0,10, df1= k-1, df2= n-k (df1= 2 and df2= 97) while n=100.

3.4 Partial Hypothesis Test (Uji t)

Table 3
Partial Hypothesis Test (T-test)
Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1(Constant	,828	,218		3,791	,000
PU	,593	,109	,523	5,456	,000
PEOU	,325	,102	,307	3,200	,002

Sumber : *Output SPSS (Lampiran)*

5. CONCLUSION

This study aims to determine the effect of Perceived Usefulness and Perceived Ease of Use on Intention to Use with the Technology Acceptance Model (TAM) approach on Jasa Marga E-toll card users in Indonesia. Based on the results of data processing, the following conclusions are obtained:

1. Perceived Usefulness or perceived usefulness of e-toll card users in Indonesia gets a good response for its users. This can be seen from the average respondent's answers to each statement item, i.e., it stands at 72.8%. Based on the continuum line the Perceived Usefulness variable is in the "agree" category, meaning that the respondent has felt the benefits provided by the e-toll card.
2. Perceived Ease of Use for e-toll card users in Indonesia stands at 76.9%. Based on the continuum line the Perceived Ease of Use variable is in the "agree" category, which means that respondents can more easily use e-toll cards. The item that has a high value in the Perceived Ease of Use variable is that the e-toll card service system is easy to use with a number of 78.2% and easy to learn about balances with a percentage of 76.2%.
3. Intention to Use for e-toll card users in Indonesia is 75.3%. Based on the Continent to Use variable continuum line is in the "agree" category, which means that respondents intend to use e-toll cards for daily activities continuously.
4. Based on the analysis, it is known that Perceived Usefulness has a positive effect on Intention to Use e-toll cards in Indonesia. The magnitude of the effect of the variable Perceived Usefulness on Intention to Use was 72.8%.
5. Based on the analysis results it is known that the Perceived Ease of Use has a positive effect on Intention to Use e-toll cards in Indonesia. The magnitude of the effect of the variable Perceived Ease of Use on Intention to Use is 76.9%.
6. Based on the analysis results it is known that Perceived Usefulness (X1) and Perceived Ease of Use (X2) have a positive effect on Intention to Use (Y) e-toll cards in Indonesia. Where the results of statistical analysis indicate a positive influence that is equal to 60.6% and the remaining 39.4% is influenced by other variables not examined. So, it can be concluded that the Perceived Usefulness and Perceived Ease of Use has a 60.6% influence on Intention to Use e-toll cards in Indonesia.

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