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CUSTOMER ACCEPTANCE ON CASHLESS PAYMENT COMMUTERLINE (KRL) TO PREVENT COVID-19 SPREADING

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Abstract. The Covid 19 outbreak forces people to undergo their behavior change in their daily activities. The changes include physical and social distancing. Before travelling with Commuter line (KRL), all customers require ticket purchases and replenish e-ticket balances and it is not uncommon for long queues to occur. Obviously, physical contact must occur during queuing and on Commuter line (KRL) ticket purchase transactions. The aim of this study is to determine the acceptance of KRL commuters if the existing payments system is changed into cashless payment instrument that have similar functions with *E-money*. This study uses a quantitative descriptive method by applying the concept of Technology Acceptance Model (TAM) and Jabodetabek KRL commuters as the residents. The result is that the Cashless Payment System can be implemented in terms of commuters convenient as the benefit of the technology.

Keyword: Cashless-payment, Customer acceptance, KRL Commuterline, Covid-19, Technology Acceptence Model.

Introduction

Transportation is the most important requirement in Jakarta. Transportation hierarchy shapes human mobility especially in Jakarta. One of the prime modes of transportation is Commuter Line (KRL or *Kereta Rel Listrik*). Commuter Line (KRL) is the most favourite mode of transportation because it is quite inexpensive and considered fast. After all, it is free from traffic jams. However, there is major problem that is the long queue of passengers during rush. This is caused by the inefficient ticketing at the station. There are still many Commuter Line (KRL) users who have not used the cashless payment method so they need to go to the ticket window to buy the ticket and this matter becomes the resistor of ticketing efficiency.

Commuter Line (KRL) is an Electric Railroad (EMU) operated by PT. Jabodetabek Commuterline KRL (KCJ) which is a subsidiary of PT Kereta Api Indonesia (Persero) (Indonesia Railways Company) that manages Jabodetabek Commuter Train and its surroundings. KCJ was formed under Presidential Instruction No. 5 of 2008 and the Minister of State Enterprises Letter. The name was changed into KCI (*Kereta Commuter Indonesia* or Indonesia Commuter Line) contained in the minutes of the General Meeting of Shareholders on 7 September 2017 which was approved by the Minister of Law and Human Rights of the Republic of Indonesia on Amendments to the Articles of Association of the Limited Liability Company with a Decree Number of the Minister of Law and Human Rights of the Republic of Indonesia No.AHU0019228.AH.01.02. Tahun 2017 dated September 19, 2017 (PT Kereta Commuter Indonesia, 2017)

Besides, the Covid 19 pandemic outbreak also forced people to adopt new habits, including reducing physical contact and distance themselves from each other. Thus, waiting in line at the counter is urged to be reduced because the Covid-19 virus easily spread and can attack people anytime and anywhere. Since March 30, 2020, the government established the Public Health Emergency status and releases Government Regulation (PP) No. 21/2020 concerning Large Scale Social Restrictions (PSBB). Based on the Health Quarantine Act, the PSBB aims to prevent diseases that cause public health emergencies. PSBB covers the consolation of schools and workplaces, as global restrictions on religion activities on site or certain facilities activities. (Kemenkes RI, 2020)

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Covid-19 is caused by the Coronavirus-2 Severe Acute Respiratory Syndrome virus (SARS-CoV-2), human can transmit the virus to another human. This virus has spread in China and also more than 190 countries and territories. WHO announced COVID-19 as a global pandemic on March 12th, 2020. In Indonesia there are 1.528 positive Covid-19 cases and 136 death cases. (Susilo et al., 2020)

In line with the recent situation, an idea that currently can be applied is cashless payment. This cashless payment will later be used as a substitute for conventional money today. Cashless transactions mean transactions carried out without using cash. Cashless payment instruments are divided into three categories according to the physical tools used, namely: (1) paper-based instruments (2) card-based instruments, and (3) electronic based instruments (Rustanto & Kartini, 2019). Top up transactions on this instrument can be done through online and offline in minimarket. This research is conducted to see the public acceptance of the cashless money idea as the KRL Commuterline payment system.

This research uses Technology Acceptance Model (TAM) as a theoretical model. According to A. Dilla and B. Setiawan, Technology Acceptance Model is a research model used to determine user acceptance of a new technology proposed by Davis in 1989. This model receives a lot of attention from research in the field of IS / IT as a model of testing user acceptance of a system. In fact, the Technology Acceptance Model is the most commonly used and developed model and has proven to be a theoretical model that is very useful in helping to understand and explain users behaviours of Information Technology. This theoretical TAM model aims to predict and to explain the use of an information technology that raises two important variables;"how useful and beneficial an IT is to users" (perceived usefulness) and "how easy is an IT to be used by users" perceived ease of use as a rating of user acceptance.

Then the perception and response of the users would influence their attitudes in accepting and utilizing IT. It not only aims to predict the acceptance of technology but the TAM model also explains users behaviour that has a causal relationship between belief (belief) about the benefits of a system and ease of use, attitude (attitude), the relationship of user behaviour (user behaviour relationship), and interests actual use (intention)

Perceived Usefulness is a subjective perception of the benefits of information technology that indirectly effects one's perception of using IT. Commerce Ease of Use illustrates the extent to which an individual believes that using information technology is easy and free of physical and mental effort. Attitude toward using an individual's attitude towards information technology is in the form of acceptance or rejection in using it. Behavioural Intention to use relates to the tendency of users to continue to use information technology. Actual System Use describes the real conditions of the use of information technology that can be measured by the frequency and duration of system use. (Dilla & Setiawan, 2014).

Method

This research is a type of quantitative descriptive research using the Technology Acceptance Model (TAM) as a research tool on customer acceptance of new technology through questionnaires. The research questionnaire is compiled with a Likert Scale by taking 309 respondents from KRL Commuters in Greater Jakarta. This research uses the path analysis model testing technique.

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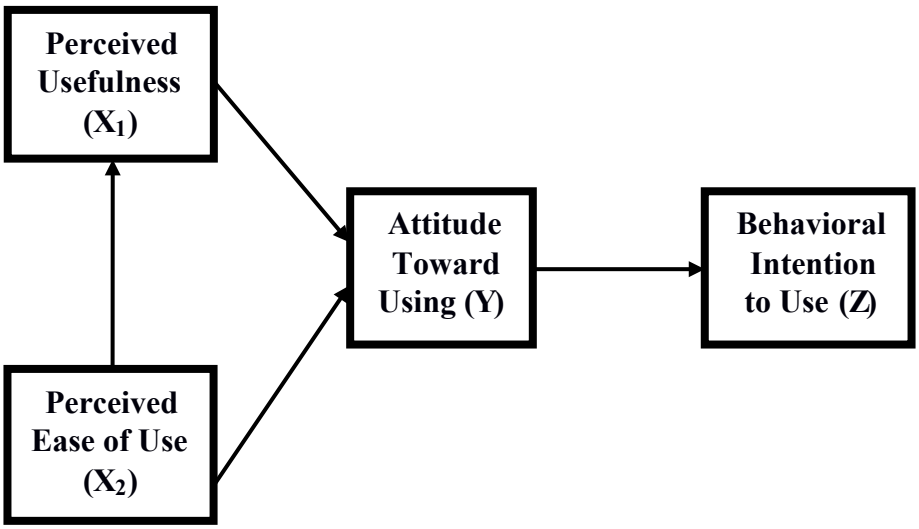

Figure 1. Research Model (Dilla & Setiawan, 2014)

The hypotheses are:
(1) There is an effect of the variable X_2 on the variable X_1
(2) There is an effect of the X_2 variable and the X_1 variable simultaneously on the Y variable;
(3) There is an effect of Y variable on Z.

Discussion and Result

This study uses a questionnaire so the validity and reliability need to be tested. Validity test is used to determine whether an item is valid or not valid in the questionnaire. A questionnaire is considered valid if the statement on the questionnaire reveal the conditions experienced by Commuter Line (KRL) passengers and their needs. General accepted rule is that α of 0.6-0.7 reflected an acceptable level of reliability, and 0,8 or greater is a excellent level. Values that higher than 0,95 are not necessarily good, they might be an indication of redundancy. (Ursachi et al., 2015)

Tabel 1. Indicator (Source: (Dilla & Setiawan, 2014)

Variabel	Indicator
Perceived	Accelerate activity
Usefulness (X_1)	Enhancing performance Increase decision made Increase effectivenes Increse productivity Facilitate human work
Perceived Ease of Use (X_2)	Easy to use Easy to learn Easy to understood Easy to control Flexible Accesible
Attitude Toward Using (Y)	Comfortabillity Wise decision Good idea Enjoyable Positive thing

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	User satisfaction
Behavioral Intention to Use (Z)	Possibility to use Intention to use Hope

In testing the TAM model, this study is performed using Path analysis. The path is divided into 3 parts ; Path 1 is the effect of Perceived Ease of Use on Perceived Usefulness, Path 2 is the effect of Perceived Ease of Use and perceived Usefulness on Attitude Toward Using and Path 3 is the effect of Attitude Toward Using on Behavioral Intention to Use.

1. Sub Path 1

Tabel 2. Sub Path 1 Coefficients[a]

Model		ıdardized ficients B	Std. Error	Standardized Coefficients Beta	T	Sig.
1	(Constant)	6.707	.949		7.065	.000
	Perceived Ease of Use	.911	.038	.806	23.862	.000

a. Dependent Variable: Perceived Usefulness

According to the table, significance value of 0,000 < 0,005 is obtained. It concludes that the Perceived Ease of Use (X_2) has a positive effect on the Perceived Usefulness (X_1) of the cashless payment system. The output obtained the coefficient of determination (R square) is 0.650, which indicates that the effect of X_2 on X_1 is 65.5% and the remaining 34.5% is influenced by other variables that are not examined. Meanwhile, the value of e_1 is obtained from the root of (1 – 0.650) which is 0.591. So, for sub-line one it results: $X_1 = 0.911\ X_2 + 6.707$. Based on the F test, it obtains a significance value of 0,000 < 0,005, which means that the model formed can be used for further analysis so for Sub Path 1, it has:

$e_1 = 0.591$

Figure 2. Sub Path 1

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2. Sub Path 2

Table 3. Sub Path 2 Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	T	Sig.
1	(Constant)	.611	.645		.949	.344
	Perceived Usefulness	.345	.036	.383	9.601	.000
	Perceived Ease of Use	.585	.041	.574	14.404	.000

a. Dependent Variable: Attitude toward Using

According to the table, significance value of 0,000 < 0,05 is obtained and it concludes that the Perceived Ease of Use (X_2) and Perceived Usefulness (X_1) have a positive effect simultaneously on the Attitude Toward Using (Y) cashless payment system. From the output (table model summary), the correlation / R (value) value is equal to 0.911 and the coefficient of determination (R square) is 0.830 which indicates the effect of X_2 and X_1 on Y is 83.0%. Meanwhile, the e_2 value is obtained from the root of (1 - 0.830) which is 0.387. So, for the two sub-lines, they result Y = 0.345 X_1 + 0.585 X_2 + 0.611. Based on the F test obtained a significance value is 0.000 < 0.05, which means that the model formed can be used for further analysis so that Sub Path 2 results as follows:

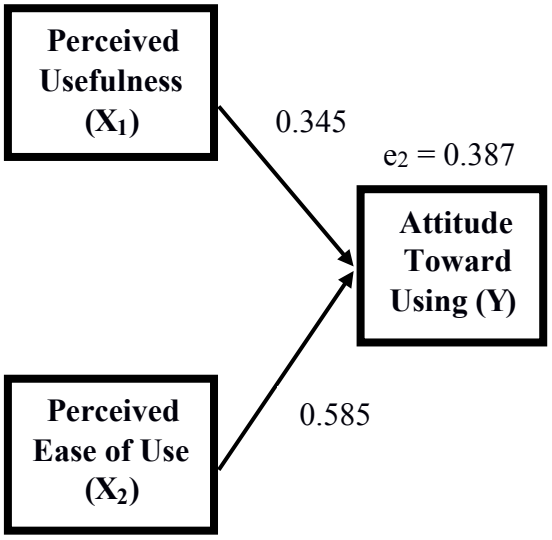

Figure 3. Sub Path 2

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3. Sub Path 3

Table 4. Sub Path 3 Coefficients[a]

Model		Coeffic B	dardized Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.281	.376		3.404	.001
	Attitude toward Using	.454	.015	.868	30.558	.000

a. Dependent Variable: Behavioral Intention to Use

According to the table, significance value of 0.000 < 0.05 is obtained and it concludes that Attitude Toward Using (Y) has a positive effect on Behavioral Intention to Use (Z) cashless payment system. Based on the table model summary, it results the value of the correlation/relationship (R) that is equal to 0.868. From the output, it obtains the coefficient of determination (R square) of 0.753, which indicates that the effect of Y on Z is 75.3%. Meanwhile, the e_3 value is obtained from the root of (1 - 0.753) that is 0.496. So, for the three sub-lines, they result: Z = 0.454 Y + 1.281. Based on the F test obtained a significance value is 0.000 < 0.05, which means that the model formed can be used for further analysis. Sub Path 3 is obtained as follows:

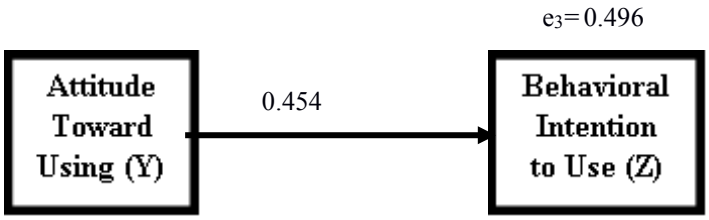

Figure 4. Sub Path 3

4. Model Path
The result of full path according to Multiple Linear Regression Analysis is:

e1 = 0.591

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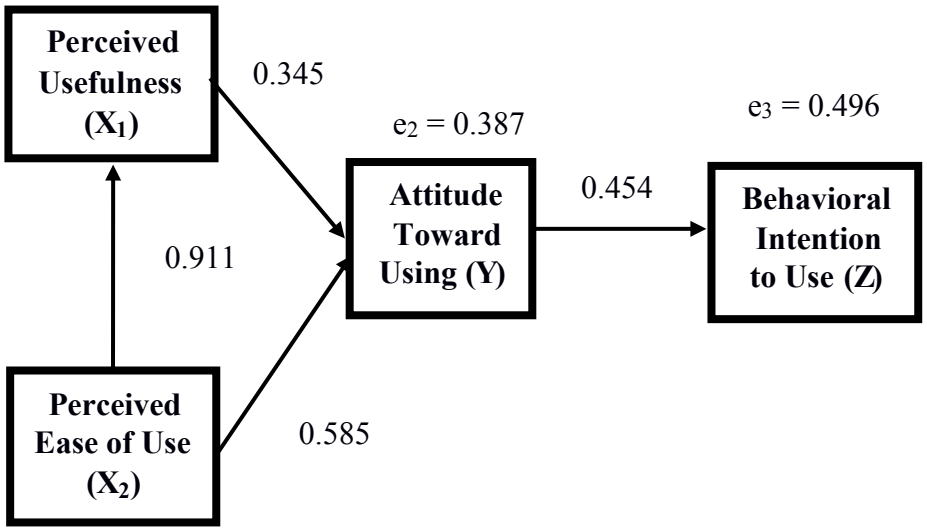

Figure 5. Result of Research Model

- The effect of X1 to Z is 0.345 x 0.454 = 0.156
- The effect of X2 to Z is 0.585 x 0.454 = 0.265

Based on the TAM model, (1) Cashless payment systems are easy to use so that cashless payments can make services faster without queuing to prevent the spreading of COVID-19; (2) Cashless payment systems are easy to use and make services faster so using cashless payment systems is a wise choice for Commuter Line (KRL) users during the COVID-19 pandemic; (3) The attitude of using the cashless payment system is a good choice for Commuter Line (KRL) users during the Covid-19 pandemic and it is expected that the existence of a cashless payment system will continue to be developed to facilitate the activities of Commuter Line (KRL) users; (4) Based on the perception of point 3, it concludes that the benefits of cashless payment system can increase awareness in terms of preventing the spreading of co-19. Besides, the benefits can be added with several supporting features that make it easier for users and the desire to use the cashless payment system will appear. From the results of the data, many people who want to support the features include; integrating with other modes of transportation, paying electricity bills, transacting in supermarkets, transacting in the station area in addition to buying tickets, online shopping, and the rest who want to be compared to functions such as *e-money*.

Conclusion

The result of data analysis above concludes that (1) the variable X_2 has a positive significant influence on X_1; (2) variables X_2 and X_1 have positive/simultaneous and significant influence on Y; (3) the variable Y has a positive significant influence on Z; (4) variables X_2 and X_1 have an indirect positive influence simultaneously/jointly and significantly to Z through Y; (5) Cashless Payment Systems can be implemented in terms of commuters convenient and the benefit of the technology.

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