Analysis of Factor Affecting User Interest Towards Use of Tcash QR Code

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Abstract—This study aims to analyze the factors that influence intention to use T-Cash QR Code from perception ease of use, perception usefulness, subjective norm, perception behavior control, and attitude. This research uses quantitative approach. The population is T-Cash user with QR Code which is in DKI Jakarta area. The number of samples in this study were 195 respondents. Analysis of the data in this study using Structural Equation Model (SEM) analysis with AMOS v.20 program. The results showed that perceived ease of use, and perceived usefulness has a positive influence on user attitudes T-Cash QR Code. Then the of ease of use and subjective norm have an influence on the perceived usefulness. Perceived behavior control have an influence on the perception of ease of use T-Cash QR Code. Perceived usefulness, subjective norms, perceived behavioral control, and attitude have an influence on the intention to use Tcash QR Code.

Keywords—technology acceptance model; subjective norm; perceived behavior

I. INTRODUCTION

In order to succeed the government program, one of which is presenting "cashless society", and fulfilling the needs of digital payment schemes. To answer the challenges of the development of this era and fulfill the market demands Telkomsel as the largest operator in Indonesia issued a product called ‘TCASH’. At present the total transaction of e-money as a whole has reached IDR 2 trillion.

First launched on November 27, 2007, T-Cash was the first digital cash product to be launched in Indonesia. Interestingly, the company that introduced this product was not a banking company that was always synonymous with money matters but a cellular telecommunications company, Telkomsel. With the launch of T-Cash, again Telkomsel became a pioneer by presenting innovative new products [1].

T-Cash products are present in Indonesia as cashless payment instruments for micropayment transactions. Telkomsel is aware that the trend of future transaction developments is cashless transactions that offer speed, practicality and transaction security. Card-based e-money transactions throughout 2016 reached Rp. 7.05 trillion, up Rp. 5.28 trillion from the previous year [2]. Then in July 2017, the electronic money transaction managed to record a record high of Rp. 1.14 trillion. The share of electronic money transactions is reported to have reached 22.68 percent of the total non-cash transactions. Far increased compared to 2009 which only reached around 2.37 percent. The biggest market share for the use of electronic money is the retail industry with a turnover of Rp. 199.1 trillion in 2016 and is targeted to reach Rp. 219 trillion in 2017. Thus, it can be seen that most of the use of electronic money is still dominated by card-based electronic money. Furthermore, the issuer of electronic money is also not limited to the banking sector. Bank Indonesia has given permission to several electronic money issuers.

Telkomsel as one of the cellular operators that uses electronic money as a means of payment in transactions. On the other hand, telecommunications revenue, which is currently supported by legacy transactions, continues to shift towards digital service-based revenue. T-Cash as one of the digital service products is expected to be able to support Telkomsel in supporting revenue.

Based on data on the composition of electronic money in circulation and the number of e-money payment service providers through the QR Code Telkomsel as one of the largest cellular provider companies or cellular service providers in Indonesia should make this an opportunity to expand the company’s market share. Therefore, in 2017 PT. Telekomunikasi Indonesia launched e-money service products by scanning the QR Code. One of the latest service technologies introduced is the non-cash transaction feature using the QR Code scan feature that will increase the ease of transactions with customers using Telkomsel TCASH’s mobile financial service. Furthermore, with the QR Code scan feature,
merchants who have cooperated with Telkomsel using TCASH payment transactions will be facilitated by not having to provide EDC (Electronic Data Capture) facilities that normally must be used for transactions via TCASH Merchant NFC stickers (tapCash) will be assisted to create a special QR Code and simply provide a QR Code display that has been registered in Telkomsel for the customer's TCASH transaction process.

However, to be able to continue to increase the growth of TCASH users with a new QR Coder scan and the migration of merchants from Tap Cash to QR Code, an evaluation of the system is needed. This is intended to improve the user experience and maintain the credibility of Telkomsel as a service provider. Thus, in order to be well received by the community especially Telkomsel users, Telkomsel as the TCASH service manager QR Code needs to pay attention to the level of ease of use, and the level of benefits when the customer switches to use a QR Code scan.

![Graph showing the number of Telkomsel e-money transactions.](image)

Fig. 1. Number of Telkomsel e-money transactions.

Based on these data, it appears that there is still a high gap between users of the QR Code and TapCash. This needs to be a concern for Telkomsel's management to stimulate its customers to migrate mobile financial services from Tap Cash users to become QR Code users. Based on the target data of using QR Code during the period of July 2017 to February 2018 it still has not reached the target optimally. There is a decrease in the realization of users of the T-Cash QR Code with targets determined by management. This is due to the fact that many business actors have started to enter QR codes as digital transaction convenience features. Therefore, in order to achieve these targets, the management must pay attention to the condition or readiness of Telkomsel's fintech that provides cashless services based on QR Code and oriented to user convenience and reduce the level of the company's investment in the product (eliminating the use of EDC and cards).

This research was conducted to find out why the target of Telcash QR Code is still not achieved, which may be caused by external factors, namely the entry of similar competitors and from internal factors regarding the readiness of the QR Code application offered to the public both in terms of ease of use, use of applications, and community usage behavior to the QR Code application. Therefore, the problem in this study was identified in the TCASH QR Code case study as a new product category for payment instruments in Indonesia.

II. LITERATURE REVIEW

A. Consumer Behaviour

Consumer behavior defined as an act of decision making that directly involves the acquisition and use of products and services that satisfy needs, which includes the decision-making process that precedes and determines this action [3]. Consumers as people who use products and services and who make payments for things purchased.

There are two types of consumers in purchasing equipment, products, services, and others, namely personal and business consumers. In business consumers purchasing products or services aims to facilitate their business, while private consumers are people who buy goods and services for their own consumption [4]. Consumer behavior is also interpreted as consumer action in obtaining and using economic goods and services. Thus it can be understood that with consumer behavior as explained in previous literature, consumers are actively involved in the decision-making process when they make purchases using e-money (QR code) so that service providers can learn this customer profile to better understand who the customer is they, and this condition is expected to know the factors that influence consumer buying behavior using e-money.

B. Consumer Acceptance

Consumer acceptance defined as "(1) an experience, or feature of experience, characterized by a positive attitude toward the product; and / or (2) actual utilization (such as purchase or eating) of the product by consumers ". That is, (1) experience, or a feature of experience, is characterized by a positive attitude towards the product, and / or (2) actual use (such as purchasing or eating) products by consumers [5]. Measures the acceptance of new products using product usage and usage levels such as infrequent, intensive, and with certain behaviors [6].

C. Technology Acceptance Model

Technology Acceptance Model (TAM) was developed by Davis in 1989, as a model of user acceptance in an information system [7]. TAM is an adaptation of Theory Reasoned Action (TRA) developed by Fishbein and Ajzen (1975). In accordance with TAM, the use of the system (actual system usage) is most influenced by the interest to use (behavioral intentions toward usage). Behavioral intentions toward usage are influenced by two beliefs, namely user perceptions of perceived usefulness and perceived ease of use. Perceived usefulness is defined as the level at which a person believes that using a particular system can improve its performance, and perceive ease of use is defined as the level at which someone believes that using the system does not require any effort (free of effort). Perceived ease of use also influences perceived usefulness which can be interpreted that if someone feels the system is easy to use.

TAM has been expanded to add original models with other constructions suitable for the particular technology under study. For example, in the retail industry, TAM has been widely adopted to predict consumer intentions to use online shopping and acceptance of mobile payment consumers by...
adding constructs such as perceived trust, security and privacy [8,9]. The TAM model that was first developed by Fred Davis in 1989 is as follows [10]:

![Diagram of the TAM model]

**D. Theory of Planned Behavior**

Planning behavior theory is a further development of action theory of reason (TRA). Ajzen developed the TPB theory by adding a variable that is not yet in TRA, namely the perceived behavioral control variable [11]. The shape of the TPB appears as follows:

![Diagram of the Theory of Planned Behavior (TPB) by Ajzen (1991)]

According to TPB, individual actions on certain behaviors are determined by the individual's interests to conduct behavior [12]. Subjective norm means a person's perception of the opinions of others about what should be done or not done [13]. In models and theories of individual acceptance such as the Theory of Reasoned Action (TRA) from Fishbein and Ajzen, Theory of Planned Behavior (TPB) by Ajzen, and the development of the Technology Acceptance Model by Venkatesh and Davis known as TAM2, subjective norms are determinants that influence behavioral intention [14]. Subjective norms are defined as people's perceptions that most people who are important to them think about what behavior should or should not be done in question [13]. Subjective norms in a nutshell are our beliefs about what other people want us to do, so that subjective norms are intended to account for social influences on one's behavior. The reason for the direct effect of subjective norms on interest is that people can choose to do a behavior, even though they themselves don't like the behavior or its consequences, and if they believe one or more references to doing a behavior and they are motivated to obey the reference then they will do it [15].

Giantarai et.al., explained that perceived behavioral control (PBC) reflects trust in accessing resources and opportunities needed to behave [16]. A number of empirical studies show that there is a relationship between perceived behavioral control in intention. Furthermore, measurement of perceived behavioral control is the perception of resources, knowledge and ability to conduct behavior. Behavioral control is further elaborated into control beliefs and perceived power to control behavior. Confidence control is a belief about resources and opportunities that can be part of a person's previous experience with that behavior or can be influenced by prior information that increases or reduces the perceived difficulties to perform certain behaviors [11]. The perceived power to control behavior is the power of certain controls to facilitate or hinder behavior performance.

**E. Framework**

Based on the literature and the results of previous studies, it can be made the following frame of mind in this study.

![Framework of the study]

**F. Research Hypotheses**

Based on the explanation of the theory, previous research, and framework of thought, the hypothesis of this study is as follows:

- **H1**: Perceived ease of use has a positive influence on the attitude of using the Tcash QR Code.
- **H2**: Perception of benefits has a positive influence on the attitude of using the Tcash QR Code.
- **H3**: Perception of ease of use has a positive influence on the perception of benefits Tcash QR Code.
- **H4**: Perception of benefits has a positive influence on interest in using the Tcash QR Code.
- **H5**: Subjective norm has a positive influence on the perception of benefits Tcash QR Code.
- **H6**: Subjective norm has a positive influence on interest in using the Tcash QR Code.
- **H7**: Behavioral control perception has a positive influence on the perceived ease of use Tcash QR Code.
- **H8**: Behavioral control perception has a positive influence on interest in using the Tcash QR Code.
- **H9**: Attitude has a positive influence on interest in using the Tcash QR Code.
III. MODELLING AND EVALUATION

A. Types of Research

In this study the independent variable based on previous literature is subjective norm, and perceived behavior control, while the dependent variable in this study is perceived ease of use, perceived usefulness, attitude, and intention to use.

B. Operationalization of Variables

The operationalization of variables in this study is explained in the following description:

1) Perceived ease of use (Y1): Perceived ease of use is the degree to which individuals believe that using certain applications can be free from effort [17]. Furthermore, the attitude is operationalized based on factors that form the intention to use according to Davis et al. namely easy to learn, controllable, clear and understandable, flexible, and easy access [5].

2) Perceived usefulness (Y2): Perceived Usefulness (PU) is a degree in which individuals believe that using certain applications can improve their work performance in an organizational context [17]. Then operationalized based on factors that form perceived usefulness according to Davis et.al. namely productivity, effectiveness, importance to job, and overall usefulness [7].

3) Attitude (Y3): A person's attitude towards an object is a function of his beliefs about the object and is an evaluative assessment response related to his beliefs [17]. Furthermore, the attitude is operationalized based on factors that shape attitudes according to Fishbein and Ajzen namely the belief that certain behaviors cause certain results [13]. Whereas evaluation is that consumers argue that the use of information technology is fun, convenient, and profitable.

4) Intention to use (Y4): A person's tendency to choose to use or not use a product or service. Then operationalized based on factors that form the intention to use according to Fishbein and Ajzen namely positive attitude, confidence in referrals, and motivation to use technology [13].

5) Subjective norm (X1): Subjective norms are briefly our beliefs about what other people want us to do, so subjective norms are intended to account for social influences on one's behavior [13,14]. Furthermore, it is operationalized based on the factors that shape the subjective norm, namely references from the family, references from colleagues, and social environment.

6) Perceived behavior control (X2): Perceived behavioral control (PBC) reflects trust regarding access to resources and opportunities needed for behavior [16]. Then operationalized based on the factors that form Perceived behavior control, namely having the knowledge, ability and resources to use technology products.

C. Population and Sample

In quantitative research, population and sample are very important. Therefore, the population and sample in this study are determined as follows. The population in this study is all Telkomsel customers who use T-Cash as a method of electronic money transactions in Jakarta. Determination of this population is based on the number of T-Cash users with the most QR Code located in Jakarta as many as 13,533 users compared to other cities as can be seen in the following table (active user data QR Code Telkomsel, 2017).

<table>
<thead>
<tr>
<th>City</th>
<th>Number of User</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jakarta</td>
<td>13,533</td>
</tr>
<tr>
<td>Bogor</td>
<td>879</td>
</tr>
<tr>
<td>Depok</td>
<td>86</td>
</tr>
<tr>
<td>Tangerang</td>
<td>404</td>
</tr>
<tr>
<td>Bekasi</td>
<td>386</td>
</tr>
</tbody>
</table>

The sample in this study are Telkomsel T-Cash customers with QR Code located in Jakarta. The sampling method used in this research is non-probability sampling. While the sampling technique in this study uses purposive sampling in which this technique is carried out by applying certain characteristics of the population to be used as samples [18]. The number of respondents refers to Ferdinand, the number of samples can be used the number of variables multiplied by five (6 variables x 5 = 30 respondents) after that added the number of hypotheses and then multiplied by five (30 + 9 hypotheses x 5 = 195 respondents) [19].

D. Data Analysis Techniques

The data analysis technique used in this study is Structural Equation Model (SEM) to assess hypotheses because it has the ability to estimate various relationships and interrelationships when explaining measurement errors in the estimation process [20].

![Fig. 5. Full structural equation model.](image)

IV. RESULTS AND DISCUSSION

A. Path Analysis Results

After testing the validity, reliability test, and data normality test the researcher analyzed the data and analyzed the relationships between variables using SEM analysis techniques with the AMOS version 20. Data analysis using SEM requires raw data that has been entered into excel format to be processed using AMOS program.

The following is a detailed description of the variables and indicators used in the model:
B. Develop Flow Charts

The next stage is carried out after developing the theoretical model along with the variables and indicators, namely making or developing a path diagram. Flowcharts made based on theoretical models and depicted using AMOS are as follows.

![Flowchart]

C. Model Interpretation

Testing the hypothesis in this study is done by looking at the critical value (CR) at a 95% confidence level or 5% error, then the CR value received is equal to 1.96 [20]. The three information above can be seen in the results of data processing with AMOS in the form of structural equations:

Based on the results of testing with SEM (see table 4), it is known that the nine hypotheses tested in this study were supported. Then, based on the regression coefficient, it is known that perceived usefulness is the most dominant factor influencing the intention to use Tcash QR Code. Then the perceived usefulness is also the most dominant factor influencing the change in attitude to use Tcash QR Code. While Subjective norm is proven to be the most influential variable on changes that occur in perceived usefulness.

V. Conclusion

This research shows the influence of subjective norms and perceived ease of use towards perceived usefulness. Then the perceived behavior control towards perceived ease of use. Furthermore, the results of this study also indicate the influence of perceived usefulness and perceived ease of usefulness on attitudes toward use of Cash QR Code and subjective norm influence, perceived behavior control, and perceived usefulness on the intention to use T-Cash QR Code. Perceived usefulness as a determinant of the intention to use the most dominant QR Code T-Cash. This indicates that T-Cash QR Code users pay more attention to user conveniences that can be a hallmark of QR Code T-Cash as digital finance.

REFERENCES


TABLE III. VARIABLES AND INDICATORS FROM THE RESEARCH MODEL

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Subjective Norm</th>
<th>SN11</th>
<th>In considering using a product I will ask for references from the family</th>
<th>SN21</th>
<th>In considering using a product I will ask for references from colleagues</th>
<th>SN31</th>
<th>The social life affects me in using a product.</th>
<th>Perceived Behavioral Control</th>
<th>PCB11</th>
<th>I know clearly the Tcash QR Code service products</th>
<th>PCB21</th>
<th>I can operate the Tcash QR Code application</th>
<th>PCB31</th>
<th>I have a tool to do/use Tcash QR Code.</th>
</tr>
</thead>
</table>

TABLE IV. REGRESSION WEIGHTS

<table>
<thead>
<tr>
<th>PEOU</th>
<th>PBC</th>
<th>Estimate</th>
<th>S.E.</th>
<th>C.R.</th>
<th>P</th>
<th>Label</th>
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<tbody>
<tr>
<td>PBU</td>
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<td>0.079</td>
<td>8.783</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>PU</td>
<td>PEOU</td>
<td>0.562</td>
<td>0.051</td>
<td>10.996</td>
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<td></td>
</tr>
<tr>
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<td>0.923</td>
<td>0.081</td>
<td>11.403</td>
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</tr>
<tr>
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<td>0.045</td>
<td>3.068</td>
<td>1,002</td>
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</tr>
<tr>
<td>ITU</td>
<td>ATU</td>
<td>0.106</td>
<td>0.028</td>
<td>3.835</td>
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<tr>
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<td>0.042</td>
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<td>2.872</td>
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