

## Popularity as an External Factor that Affecting the Usage of Mobile Banking BCA by Using Technology Acceptance Model (TAM)

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### ABSTRACT

Following the enhancement of technology, there is a pressure to develop the existence system, includes on the banking industry. Almost banking company recently has launched their own m-banking, and continue the development to remain competitive. This paper aims to understanding the external factors affecting m-banking user acceptance. This study traces Technology Acceptance Model (TAM) each variable and examined popularity (P) as external factors in m-banking usage. P as proposed variable allegedly affecting the factors of accepting technology m-banking which is perceived usefulness (PU) and perceived ease of use (PEU).

**Key words :** TAM, BCA, M-banking, popularity.

### 1. INTRODUCTION

The advancement of internet technology facilitates small and medium-sized enterprise (SME) for quickly enhance the growth [1]. In particular, as mobile devices increasingly involve people's daily lives, such as education, entertainment, navigation, and in other fields, it is difficult to evaluate interactive mobile applications by only their functions and usability, due to the involvement of human perception [2], also the improvement of a system has enabled to increasing features and function for applications by doing an observation [3].

In dynamic Information Technology environment, many financial institutions seek new strategies with technology applied to facilitate the information sharing and transactions such as m-banking and internet banking. Integrating banking business to customers using mobile devices is one of the competitive strategies, customers will be able to immediately obtain and interactive banking services anytime and anywhere which, in return, initiate a great value for them [4]. The information technology represents the lifeblood of different organizations, it is the window through which organizations overlook the interior surrounding and outer

world and looks at their future. The Management Information System provides accurate and appropriate information about different activities and meets the management needs of different information [5]. It helps customers to access banking services so easily without having to visit a bank branch for making transactions. It is relatively new service offered by banks and popular in nowadays, because the convenience and features that saves time and efficient.

Compared to other offered facilities that uses the most profound technology on banking service, m-banking development can be considered the fastest. This development is due to the need of nowadays society that promoting mobility. Everything in a click, making the m-banking banking services more convenience. And the benefit of it, is more likely to increase customer satisfaction. Another benefit using mobile service is the availability of the system anywhere/anytime. Meanwhile in the recent decades due to people's need for mobile, mobile phone nearly leaving the user [6]. Because of that, the user that want to do bank transaction does not have to visit the bank ATM. The technology applied was quite rapid, almost all banks include Bank Central Asia (BCA) have introduced their own m-banking service to reduce the cost needed, and especially to improve operations, it forces the banks to continue making strategies they employed to remain competitive. Customer now wants the services to be more useful, smooth, flexible, convenience, or in a word they want the services suit their needs which the traditional banks can't offer.

With the features, services, and system quality that already provided, BCA still facing issues, m-banking somehow generally less-noticed and utilized by the customer. Hence, it leading to the needs of an understanding of customer acceptance for m-Banking, also identifying affecting factor of customer acceptance for using m-banking. It is an important issue because the answer then will provide the banking industry solution to formulate their strategy to promote or improve the new form of m-banking.

The variables in this research adopted from the very popular and most frequently used theoretical framework in Information System (IS) and m-banking research that has captured user attention is the TAM [7]. Overall, the TAM

model was 40% evidenced effective in predicting the system use [8].

This research's purpose is to analyze factors that affecting the usage of M-banking BCA by using a modified model for TAM. This model's purpose is to predict information technology and or systems acceptance. This model focuses on user's attitude towards user's intention for a specific technology or service, already become the most abroad applied model for user acceptance and usage. TAM is a powerful model for predicting user acceptance [9]. The rest of this paper is organized as follows. In section I, we stated the reason to do this research, in section II, we discuss and observe the literature that related to the topic. Section III, we explain the method that we use to do this study. Section IV, we introduce the proposed model for modifying Unified theory of TAM and identifying result for the topic. Section V, we conclude the paper.

## 2. LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

### 2.1 Mobile Payment

Mobile payment authorizes consumers to reduce the need to use cash fund, and offers convenience and speed in transactions. Mobile payment is one of the methods to do electronic payment for items, services and pay-bills. This method can be done in mobile devices which are the mobile phones, smartphones, personal digital assistants by providing wireless communication network technology or any other communication technologies. The more widespread use of mobile devices and the increasing need for users to make payments conveniently and on time, mobile payment is expected to be an important channel for conducting financial transactions.

### 2.2 M-banking

M-banking has been transformed progressively in banking industry for more than ten years. The transformation in technology allow the banking industry to pamper its customers by providing service with solutions to the problems in the use of self-service technologies. Nowadays, the banking industries competing to provide a series of channel as customer touchpoints, such as branches, automated teller machines (ATM), telephone, m-banking, and internet banking (i-banking) that enable the customers to do financial transactions, namely transfers fund, paying bills, purchase stuffs, stock exchange transactions, and other financial services in a secure website provided by the banking industry [10].

Mobile device which is mobile phone, smartphone, or tablet are used to perform transactions which are all almost the same with the transactions in i-banking services [4]. M-banking and i-banking are regularly considered as similar self-service channel for banks to convey products and services for their users [11]. Many financial company encourage their users to adopt the self-service technology of their company, which allows extra benefits, moreover it will save cost and enable cross-selling activity [12]. At the same time, this way can improve the relationship between banks and their customers [13].

### 2.3 TAM

The TAM concept was first developed by Davis in 1986, which offers a theory as a basis for learning and understanding user behavior in accepting and using technology. This model published the results of his research with an affirmation on PEU and PU that has an influence to predict attitudes in technology and information systems. TAM is a theory in Information Systems where users can accept and use a technology [14].

The TAM model conducted based on psychological theory, that occur on user behavioral of technology users that is based on beliefs, attitudes, desires, and user behavioral relationships. The objective of the model is to define the key factors of user behavior towards technology user acceptance. TAM has two main constructions namely PU and PEU. TAM provides a basis for how external variables affect trust, attitudes, and intentions to use technology [15].

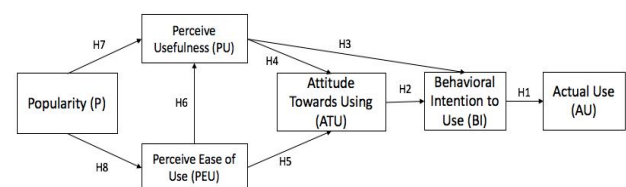


Figure 1: Research Model

#### A. Actual System Use

The closest to the objectives to investigate the relationship between TAM variables and actual system use (AU), it is stated that AU cannot be defined by PU and PEU [8]. This variable is the end-point where everyone should be knowing what to do with the technology, AU can be predicted better by BI, which a factor that can lead people to use the technology. Therefore, in several cases, a possible explanation is that BI defined by PU and BI which is the explanation of the actual usage.

#### B. Behavior Intention to Use

Behavior intention to use is the user behavioral preferential to use a technology and deciding to re-use it. The degree of usage intensity of a technology on someone can be predicted

from by the user attitude towards the technology, for example the urge to spending, motivation to continue using, and the urge to recommend other users [7]. Measuring intention to behave can be the best way to predict future buying or using behavior.

**H1** BI is positively influence AU in M-banking BCA usage

### C. Attitude Towards Using

Attitude towards using a particular system is a primary determinant of the BI the system, which can produce the actual value of the usage behavior. In other word, individuals make decisions rationally and systematically on the basis of the information available to them [13]. The more positive the attitude, the stronger probability for intention to use. ATU is a determinant factor of whether the subject having intention to use, which in turn generates the AU behavior.

**H2** ATU is positively influence BI in M-banking BCA usage

### D. Perceived Usefulness

Perceived usefulness is the level of individual confidence that the use of technology will improve its performance. When users feel if a particular system is easy to use, it will influence the user's actual usage of the system. Therefore, users are interested in using the system [16].

PU is one of the beliefs for users to make decisions using the support of the system. This construct helps us to know when users trust information systems. In accordance with its high value, the information systems will beneficial for user's decision making process [17].

**H3** PU is positively influence BI in M-banking BCA usage

**H4** PU is positively influence ATU in M-banking BCA usage

### E. Perceived Ease of Use

Perceived Ease of Use is a strained set up in TAM, explained as "The degree of ease associated with the use of the system". The impact of PEU creates perceptions, encouraging users to accept and use new systems [18]. Most previous literatures about behavioral decision making shows that individuals tend to decide something based on the level of efforts that they need to do. Also, there is many empirical studies stating PEU directly and positively impacting on BI.

PEU can be explained as how users are intention towards using a system, based on the system's easiness to learn. Or use. If the user feels that it's easy to use the system, thus, the user will loyal to the system [19]. Conversely, if the user does not feel easy to use the system, users will not trust the system. Indicators of information technology PEU, including [14]:

1. Easy to Learning
2. Controllable
3. Clear and Understandable

4. Easy to Use
5. Flexible in Time
6. Flexible in Place
7. Flexible to Choose
8. Easy to become skillful

**H5** PEU is positively influence ATU in M-banking BCA usage

**H6** PEU is positively influence PU in M-banking BCA usage

### F. Popularity

The popularity (P) of a system has been identified to be a significant determinant of initial trust. As users lack of information, knowledge, nor direct experience, the P and reputation needed to form their initial trust in using m-banking so the users can rely on second-hand information, PU and PEU [20].

Being a relatively new entrant to the m-banking services face concerns of risk and user confidence of the system, the P of the system is preventing user from being reluctant to use the system services. To assess the trustworthiness of a potential user, the system reputation is the main criteria that already used widely and well acknowledge. P or familiarity is the knowledge of the vendor, and understanding of its relevant procedures and technology [21].

**H7** P is positively influence PU in M-banking BCA usage

**H8** P is positively influence PEU in M-banking BCA usage

## 3. RESEARCH METHODOLOGY

The implementation of this research is based on Analysis Method. The process of Analysis Method is done through several steps, which are: Gathering Literature that related to this topic; Literature review, the study of literature related to the establishment of M-banking; Analyze all the information from literature for the appropriate acceptance model, which will be used as a reference in doing the developing the research; Identify and assess system needs to be built matched the current requirement.

The form of paper will be presented in descriptive format. The method of analysis will be used for the construction of a model of technology infrastructure for knowledge management process.

Around 100 sample size were hoarded from Bina Nusantara university students. A questionnaire conducted for enlightening proposed research hypothesis. The response was justified by seven numerous variables, questions rate using Likert scale which is calculated based on "strongly disagree =

1” to “strongly agree = 5”. Conducting the validity and reliability test by identifying the discriminant validity, the average variance extracted, and by using composite reliability. In order to test the hypothesis is to analyze the data using Smart PLS Version 3.0 software followed by PLS method.

### 3.1 Average Variance Extracted and Composite Reliability

Each construct should have needed more than 50% average variance extracted (AVE) and more than 0.7 of composite reliability. Thus, both criterions touched our variables (See Table 1). For Cronbach’s alpha, 0.6 is the minimum value to significant variable reliability.

**Table 1:** Cronbach’s alpha, composite reliability (CR) and AVE

Research Construct	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
AU	0.670	0.781	0.426
BI	0.710	0.809	0.465
ATU	0.779	0.850	0.533
PU	0.785	0.854	0.542
PEU	0.690	0.801	0.454
P	0.525	0.748	0.502

### 3.2 Discriminant Validity

The discriminant validity in this research will use Fornell–Larcker criterion to identify the compatibility towards the proposed model. Therefore, discriminant validity is being positively confirmed in our designed model (See Table 2)

**Table 2:** Fornell–Larcker criterion (discriminant validity)

Research Construct	AU	BI	ATU	PEU	PU	P
AU	0.769					
BI	0.769	0.810				
ATU	0.504	0.490	0.692			
PEU	0.488	0.448	0.645	0.821		
PU	0.602	0.590	0.488	0.454	0.711	
P	0.398	0.448	0.331	0.475	0.430	0.541

### 3.3 Structure Model

Structure model is estimated based on the path coefficient, standard deviation and statistical testing. The procedure is using bootstrapping feature for calculation of p-value with samples for the calculation of path coefficient. Meanwhile, statistical testing and path coefficient measured the hypothesized model as shown in Table 3.

### 4. RESULT AND DISCUSSION

This research focused on relationship between external variables which is P and the usage of M-banking BCA. Beldad, de Jong, & Steehouder [found the P of a system has been identified to be a extensive determinant of initial trust and has significant and positive influence on the acceptance of a system. Therefore, H7 and H8 positivism significantly assessed that P has influence in the PU and PEU. Table 3 also illustrate that Technology Acceptance Mode (TAM) can be applied on this research which is the acceptance towards Mobile BCA in accordance with the supported result for H1, H2, H3, H4, H5, H7 and H8.

**Table 3:** Hypothesis Test Result

Hypothesis	Path	Path Coefficient	Standard Deviation (STDEV)	t Statistics ( O/STDEV )	Result
H1	BI -> Actual Usage	0.769	0.044	17.416	Supported
H2	ATU -> BI	0.265	0.097	2.732	Supported
H3	PU -> BI	0.46	0.107	4.314	Supported
H4	PU -> ATU	0.245	0.104	2.365	Supported
H5	PEU -> ATU	0.534	0.097	5.528	Supported
H6	PEU -> PU	0.322	0.116	2.779	Supported
H7	P -> PU	0.277	0.119	2.336	Supported
H8	P -> PEU	0.475	0.095	4.999	Supported

### 5. CONCLUSION

In this research, we conducted a new model which additional of P variable as the external variable for representing the consumer physiology in accepting technology for banking transaction in M-banking BCA. Followed by the result, the ATU is the most essential factor to predict the usage of the system and technology with the additional of P factor. All

path positively affected consumer to do banking transaction in M-banking BCA.

There were 100 responses were conducted in this study. This research conducted a model with the integration of TAM and Variable P; however, different and additional integration may be providing more significant to the factor in using m-banking BCA.

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