User acceptance of m-banking application: Indonesian cases

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Abstract. M-banking is one of the emerging banking facilities lately. Indonesian bank has been offering m-banking services for several years. However, the use of Indonesian m-banking users is still not as expected. This study aims to observe user acceptance of Indonesian m-banking application using the approach of Technology Acceptance Model (TAM). 205 participants are involved in this study voluntarily by filling out the user acceptance questionnaires with regards to two different m-banking application from bank A and bank B. Result shows that Indonesian banks need to give more promotions related to its m-banking, especially about the usefulness, the security system, and the risk that may be faced by the consumers.

1 Introduction

M-banking, or often called m-banking, is a commercial application on smartphones that accommodate the users in doing bank transactions whenever and wherever [1]. The use of m-banking itself is influenced by the development of the latest mobile phone technology, the smartphone. Compared to the internet banking as the previous banking service, the m-banking is superior in terms of its practicality, because m-banking can be accessed anywhere and anytime, without the need of a hard token.

In Indonesia, it was recorded that almost half of 126 banks have initiatives or have already offer m-banking services in 2010 [2]. However, the increasing number of the use of Indonesian m-banking is below the expectation due to several reasons, one of them is the issue of user acceptance.

User acceptance in relation to information technology is defined as the willingness of a user to use certain information technologies [3]. The concept of user acceptance itself emerged upon the increasing competitiveness of innovations in information technology. The user acceptance issue is particularly important since in reality, users are not always accept new technologies, even the new technology is supposed to be more sophisticated and useful than the others [4].

Various models have been proposed to evaluate user acceptance. One of the most widely used models is the Technology Acceptance Model (TAM) developed by Davis [5]. In this model, there are two factors that are most influencing the acceptance and adoption of a technology, namely perceived usefulness and perceived ease of use. Perceived usefulness is defined as the degree to which a person believes that using a particular system would enhance his or her job performance. While perceived ease of use is defined as the degree to which a

person believes that using a particular system would be free of effort [5].

In relation to m-banking, Munoz-Leiva et al. [6] modify TAM by adding 3 other factors, namely social image, perceived trust, and perceived risk. The social image is defined as the level of which one can gain the respect of the surrounding environment when using a particular m-banking[7]. The perceived trust is a person's expectation that his with m-banking will not take advantage of him [8]. While perceived risk is defined as risk in relation with the innovations in m-banking [9]. These factors will then affect the attitude, which is the form of acceptance or rejection, and finally led to the intention to use as can be seen in Figure 1.

This study aims to observe user acceptance of Indonesian m-banking using approach of the Technology Acceptance Model (TAM), as an effort to increase the number of m-banking' use in Indonesia.

Figure 1. The m-banking acceptance model
(source: Munoz-Leiva et al., 2016)

2 Method

205 respondents (mean age = 21.5 years, SD = 3.4 years) are involved in this study voluntarily. The sample of

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respondents is chosen based on a convenience sampling. The respondents can be classified into 3 groups: the user of m-banking A, the user of m-banking B, and non-m-banking users (new users).

User acceptance data are obtained using a set of questionnaire ([5], [6]), which consists of 21 statement items, with Likert-type scales ranging from 1 (strongly disagree) to 7 (strongly agree). Before user acceptance and usability questionnaires are used, the reliability and validity of the questionnaire have been checked. For the reliability test, a Cronbach's alpha indicator is used with a limit value of 0.7. Meanwhile, for validity test, Spearman correlation coefficient value with 95% confidence level is used.

3 Result and analysis

Since the data is a nominal data, the median value is used for subsequent processing. Participants' responses data to the user acceptance questionnaire are then tested using Mann-Whitney U Test in order to see whether there is a significant difference between the groups of participants. From the results of median calculations and significance tests, there are significant differences in some factors, namely perceived usefulness, attitude, perceived trust, and perceived risk, as can be seen in Table 1.

For social image factor, all three groups of participants give a fairly low score that is in the range from 2 to 3. This can lead to the conclusion that m-banking A has a bad social image. In this case, it means that using m-banking A is not a prestige thing and m-banking A is not a status symbol to participants. This condition can be explained by the fact that various banks in Indonesia have already offered m-banking services, so using m-banking from a particular bank tends not to make someone feel exclusive. To be able to improve and enhance the social image, bank A can offer new features in m-banking applications that do not yet existed and offered by other banks. By being a pioneer in a feature, m-banking A can gain exclusivity and attract target users' attention.

For perceived ease of use factors, there are no significant differences between the responses of all three groups of participants, the median value of participants' responses are in the middle-up scale. This shows that m-banking A is considered quite easy to use, but this condition can be improved. One thing that bank A can do is to create a tutorial on how to use the application, which appears on the first use of the application. This recommendation is proposed based on some participants' difficulties experiences.

Overall, perceived usefulness is also considered good enough by the participants, but significant differences between m-banking A and non-users responses show that non-users participants feel that m-banking A is not as useful as how m-banking B. This condition can be improved by doing marketing activities in the form of campaigns, promotions, and others. From research conducted by [16], it is found that marketing has a significant impact on the adoption of m-banking. Banks that do marketing actively, earn an average adoption rate

2 times higher than banks that do not. Through marketing, a bank can educate potential users about m-banking features, transactions that can be done, and what benefits can be gained.

For perceived trust, the median value of the participants' responses has shown a fairly good level of trust, but significant differences between m-banking A and non-users responses are found. It shows that non-users of m-banking have a low level of trust, compared to both m-bank A and B level of trust. To improve this condition, the bank can also take advantage of marketing activities, e.g. by using testimony from m-banking users.

The same result is also found in the perceived risk. The non-users responses for perceived risk are the highest among 2 other groups of participants, which indicates that non-users participants feel that using m-banking is a risky option. Some participants also stated the reason for not using m-banking is due to security issues, since m-banking applications connected with mobile phones that can be easily lost and misused. Same as previous factors, to improve perceived risk, a bank can explain m-banking's security system, what risks may be faced, and mitigations that can be done.

Median values from three groups of participants for attitude factor are in the range from 5 to 6. These results indicate that the three groups of participants have a good attitude towards m-banking. There is 1 significant difference, that is between m-bank A and m-ban B which indicate that m-bank B feel that using m-banking is not a thoughtful idea compared to using m-banking that is currently being used.

For intention to use, median value of both groups of participants' responses are in the range from 5 to 6. It can be concluded that both groups of participants have a big intention to use m-banking A if they are given access to the bank. However, m-banking A is not the main choice in choosing m-banking.

Factors	Median value			Significance test result (*: significantly different)		
	Bank A	Bank B	non-users	Bank A – Bank B	Bank A and non-users	Bank B and non-users
Social image						
The use of m-banking have more prestige than those who do not use them	2	2	3	-	-	-
The use m-banking have a higher status	3	2	3	-	-	-
Using m-banking is a status symbol in my environment	2	2	2	-	-	-
Perceived ease of use						
Using m-banking is clear and understandable	5	5	5	-	-	-
Using m-banking requires mental effort (thinking, making decision, counting, memorizing)	4	3	4	-	-	-
I find that m-banking is easy to use for any need	6	5	5	-	-	-
In general, m-banking is easy to use	6	5	5	-	-	-
Perceived usefulness						
Using m-banking can help my banking transactions	6	6	6	-	*	-
Using m-banking increase the effectiveness of my banking transactions	6	6	6	-	*	-
In general, m-banking can be useful for my banking transactions	6	6	6	-	*	-
Perceived trust						
I think that bank will keep their terms and commitment applied to m-banking application	6	6	5	-	*	-
I think that m-banking is reliable	6	6	6	-	*	-
In general, I trust m-banking	6	5	6	*	*	-
Perceived risk						
Other people might know my online transactions if I use this application	3	3	4	*	*	*
There is a significant risk when making my queries and/or banking transactions through m-banking (R2)	3	3	4	-	*	-
I believe that making queries and/or banking transactions with this application is a risky choice	2	3	4	-	*	*
Attitude						
Using m-banking is a thoughtful idea	6	5	5	*	-	-
Using m-banking is an interesting idea	6	5	5	-	-	-
I am happy to use m-banking	6	5	5	-	-	-
Intention to use						
Assuming you have access to m-banking, you intend to use it	6	6	6	-	-	-
If I have access to m-banking in a few months ahead, I believe that I will use it	6	5	5	-	-	-

Both attitude and intention to use can be improved by improving the five previous factors. This is because based on the research of [5] that 5 other factors will directly affect the attitude and intention to use. Therefore, if other factors have been improved, it can also improve the attitude and intention to use m-banking.

4 Conclusions

M-banking A acceptance level is quite low and can be improved by various factors. Several things can be done to improve this level of acceptance, that are creating new innovative features that can enhance the exclusivity of m-banking A and by doing marketing activities with greater emphasis on the benefit of using m-banking, security factors, and risk factors. This marketing activities also can be used to increase the awareness level of non-users. The marketing activities itself also needs to be done through an appropriate channel such as various kind of social media.

This research has many limitations and can be further developed in the future. User acceptance analysis can be further conducted by finding which factors that are the most influential to user acceptance level. By knowing which factors that are most influencing, the bank can more focus on making improvements and development. In addition, research can also be further developed by reviewing other transaction functions in m-banking or reviewing other banking services such as internet banking, SMS banking, etc., so that the bank can improve overall performance, not only in m-banking.

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