

e-Money Implementation Barriers and Challenges: A Case of Indonesian Interbank Network Company

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Abstract: The development of e-Commerce triggers the use of e-Payment as a payment instrument in online shops. XYZ company as one of the payment solution provider in Indonesia developed an electronic money product named e-Money M. By the end of 2014, e-Money M users had only reached 1.25% of total users targeted in the business plan. This research is intended to identify the barriers and challenges e-Money M. Data was collected through questionnaires and interviews. The survey respondents are 125 e-Money M users. The qualitative data was collected through interviews to the e-Money M development team and customers. The research evaluated six challenges and barriers of e-Money M implementation namely user acceptance, security, infrastructure, socio-cultural factor, user convenience and user preference. The result from the questionnaires show that user preference is the most significant barrier faced by e-Money M implementation. From the interviews, we found the reasons of lack user tendency choosing e-Money M are the limitation of merchants, limitation of access method and limitation of transaction channel. From management view, it was found that e-Money M has difficulty in acquiring customers caused by lack of experience in B2C business and competitor's strength customer's base.

Key words: Challenges, barriers, e-Payment, e-Money, management

INTRODUCTION

Bank Indonesia as the central bank of Indonesia launched the National Movement of Non-Cash Program on August 14, to form a society that use more of non-cash instruments (Less Cash Society/LCS) in the economic transactions. One embodiment effort objectives of the National Movement of Non-Cash is to support and develop the electronic money as a non-cash payment instruments.

Electronic money has been increased to be used as payment instrument in Indonesia. By November 2013 the number of electronic money circulated in market has reached 286.756.651 (Bank Indonesia, 2013). This number has been increased by 52.94% the amount of electronic money in circulation until 2012. Transactions number with electronic money in November 2013 was 12.326.415 with average 11.405.282 transactions every month (Bank Indonesia, 2013). This shows that electronic money usage in Indonesia continues to grow.

To date there are 20 electronic money issuers under license from the Bank Indonesia. One of them is PT. XYZ. The company engaged in the field of finance especially for electronic payment services. Electronic money M,

here after referred as e-Money M has been introduced as e-Commerce payment instrument by XYZ looking the opportunities in this field.

The achievement of the business of e-Money M is still considered to be low. Based on the business plan documents of e-Money M, targeted customers will reach 142.616 people by the end of 2014. However, in practice, the number of customers until the end of 2014 only reached 1.776 or just 1.25% of the target.

The amount of e-Money M transactions since 2012 until the end of 2014 was 2,220 transactions. Compared with the e-Money transactions in Indonesia which reached an average of 11,405,282 transactions per month, this amount is very small. The achievement of business targets are still far from the original plan and the number of transactions is still very low. This study was conducted to evaluate the problem in the implementation of the e-Money M.

The amount of research on the challenges and barriers to e-Money products is still limited. One example is the case encountered research on a type of e-Payment instruments in Ghana (Kumaga, 2010; Haruna, 2012; Agyeiwaah *et al.*, 2014). This study deem to suitable as basic literature to conduct this research as Ghana is one of developing country in the world as well as Indonesia.

Literature review

e-Payment: e-Payment can be defined as all payments made for businesses, banks, public services from the public or businesses and executed through a telecommunications network or electronic network using modern technologies (Sumanjeet, 2009).

Based on this definition, electronic payment is a payment made by the actors both individuals and businesses without the intervention of others. Therefore, the payment is done remotely without physical presence of the buyer that does not involve paper money. e-Payment systems can be generally classified into 4 main categories (Sumanjeet, 2009) namely: online credit cards, electronic cash, electronic checks and smart cards. Another categorization of e-Payments are: card based systems, electronic money, e-Mail payments, electronic checks, other electronic solutions and mobile payments (Sahut and Galuszewska, 2004).

e-money: Based on Bank Indonesia Regulation Number 11/12/PBI/2009 on electronic money the e-Money (electronic money) is a payment instrument that satisfies the elements as follows:

- Issued on the basis of the value of money paid in advance by the holder to the issuer
- The value of money stored electronically in a medium such as a server or chip
- Used as a means of payment to merchants that is not the issuer of the electronic money
- The value of electronic money deposited by the holders and managed by the issuer not represent deposits as defined by the laws regulating the banking sector

e-money is one of e-Payment categorization based on e-Payment category defined in previous study (Sahut and Galuszewska, 2004).

e-Money di Indonesia: Until 2015, in Indonesia there are 20 electronic money issuers which already has a license from Bank Indonesia. Some e-Money products that are popular to be used are mandiri e-Cash, XL tunai,

indosat dompetku, telkomsel T-cash, dan DOKU Wallet. Comparisons of e-Money M and the other e-Money products are shown in Table 1. In Table 1, six e-Money products are compared from its establishment year, number of partnered merchants, merchant's type, registration methods and top up method. About 4 of the e-Money products are launched by telecommunication company and bank. Mandiri e-Cash is issued by mandiri bank, XL tunai, indosat dompetku, telkomsel T-cash are issued by telecommunication companies.

Challenges and barriers to e-Money: Based on the literature study, six main variables was found as the obstacles and challenges in e-Money. These variables are user acceptance, security, infrastructure, socio-cultural factors, user convenience and user preferences. These variables are derived from previous researches related to the implementation of e-Money instruments in developing countries selection of the variables used in this study adjusted to the development of electronic money in Indonesia. Summary of the underlying variables and references can be seen in Table 2.

User acceptance: User acceptance influences one's tendency to use electronic money than cash (Kumaga, 2010). User acceptance is an important factor because one of the e-Money M's business targets is an increase number of customers every year. If the user acceptance of the electronic money is getting better, then the chances to achieve the target of increasing the number of customers also increased significantly.

Security: Security is one of the challenges in the development of e-Payment in general (Kumaga, 2010). Customer expectation towards e-Money security system would influence their trust to use the product. In this case, security can be a major challenge in developing e-Money system to encourage the customers to use it.

Infrastructure: Infrastructure include network reliability, speed of transactions as well as the reliability of the system is a challenge in e-Money development (Haruna, 2012). This variable was also studied in research conducted in e-Money development in Ghana

Table 1: Electronic money comparison in Indonesia

Description	e-Money M	Doku Wallet	Mandiri e-Cash	Telkomsel t-cash	XL Tunai	Indosat Dompotku
Establishment Year	2013	2011	2014	2007	2012	2013
Number of Merchants	11	178	62	46	59	29
Merchant's type	Online	Online and offline	Online and offline	Online and offline	Online and offline	Online and offline
Registration method	Online through e-Money M website	Online through Doku Wallet website	By user's phone	By user's phone	By user's phone	By user's phone and Indosat outlet
Top up method	Transfer through inter bank ATM network and via. top up counter	Via. ATM BNI, via. SMS Banking BNI, inter bank ATM network and via. convenience store	Via. ATM Mandiri, via. SMS Banking Mandiri, inter bank ATM network and via. Mandiri ClickPay	Via. telkomsel counter, via. convenience store and via. interbank ATM network	Via. interbank ATM network via. convenience store, via. XL counter	Via. transfer and via. Indosat counter

Table 2: Variable's description and references

Variables	Description and reference
User acceptance	Tendency of using e-Money than cash (Kumaga, 2010) Knowledge of e-Money utilization (Kumaga, 2010) Trust of e-Payment service (Kumaga, 2010)
Security	Account abuse risk (Kumaga, 2010)
Infrastructure	Internet connection availability (Kumaga, 2010; Haruna, 2012; Agyeiwaah <i>et al.</i> , 2014) System availability (Kumaga, 2010; Haruna, 2012; Agyeiwaah <i>et al.</i> , 2014) Transaction's processed time (Kumaga, 2010; Haruna, 2012; Agyeiwaah <i>et al.</i> , 2014) Internet connection's speed (Kumaga, 2010; Haruna, 2012; Agyeiwaah <i>et al.</i> , 2014)
Socio-cultural factor	Unbanked population level (Kumaga, 2010) E-payment adoption level (Kumaga, 2010)
User convenience	User convenience of use (Sahut and Galuszewska, 2004; Nam, 2014) Compatibility with user expectation (Sahut and Galuszewska, 2004; Nam, 2014) Easeness of access (Sahut and Galuszewska, 2004; Nam, 2014) Difficulty level of top-up process (Sahut and Galuszewska, 2004; Nam, 2014) Difficulty level of registration process (Sahut and Galuszewska, 2004; Nam, 2014)
User acceptance	User preferences in using a certain e-Money product (Sahut and Galuszewska, 2004)

(Kumaga, 2010; Agyeiwaah *et al.*, 2014). The level of infrastructure's availability is important to be examined because this is one of the commitments defined by organization to be delivered to the customers.

Social and cultural factor: Socio-cultural factor that embedded in a society influenced its acceptance in e-Money implementation (Kumaga, 2010). Socio-cultural factor includes the number of people who do not have access to banking services. In addition, social and cultural factors are also associated with adoption level to e-Money services with regard the tradition of using cash payment or transfer method.

User convenience: Convenience of use can attract users to utilize the e-Payment services (Sahut and Galuszewska, 2004). User convenience is also one of the success factors for e-Payment solutions (Sahut and Galuszewska, 2004). The organization studied in this research has a goal to develop a practical means of payment through e-Money M. Information about user perceived convenience of use for e-Money M can be used as material evaluation of the achievement of the objectives of product development of e-Money M.

User preferences: One of the challenges in the development of e-Money is a competitive challenge

(Sahut and Galuszewska, 2004). Competitive factors are influenced by organizations as other e-Money publisher. The challenge faced by e-Money issuers is the preference of the user in selecting a specific e-Money product. In Indonesia e-Money M has 20 other similar products as its competitor. Therefore this indicator fit to be examined in this study.

MATERIALS AND METHODS

Methods: This study is conducted with quantitative and qualitative methods. The quantitative method is used to measure respondent response to each challenge variables using questionnaires as the instrument. The qualitative method are used to extract the challenge and barriers in e-Money development from managers and customer point of view in deeper manner. Some question has been constructed as the instrument.

Population and sample: The respondents of the research are e-Money M account's holder. Questionnaires for the quantitative methods have been distributed to 400 e-Money M customers. Interviews were also conducted with e-Money M project leader, marketing manager and nine e-Money M customers.

Instruments: The variables used in this study are user acceptance, security, infrastructure, socio-cultural factor, user convenience and user preference (Kumaga, 2010; Haruna, 2012; Agyeiwaah *et al.*, 2014; Sahut and Galuszewska, 2004). The questionnaires was filled with 6-Likert scale with 1-6 being strongly disagree-strongly agree. The questionnaires also consist of an open ending question about customers difficulty and challenge in using e-Money M.

For the interviews, 13 questions were constructed to extract customers experience and knowledge of e-Money M development and implementation. Nine interview questions are constructed for e-Money M managers to discover their experience and knowledge of e-Money M barriers of implementation.

RESULTS AND DISCUSSION

Respondent demographics: The response to the questionnaires obtained by sending an email link of the questionnaires to 400 customers of e-Money M. The number of filled questionnaires was 125 questionnaires. Demographics of respondents who filled out the questionnaires are shown in Table 3.

Table 3: Respondent demographics

Demographic	Percentage
Gender	
Male	0.65
Female	0.35
Education	
High school	1.00
Diploma	5.00
Bachelor	14.00
Master	79.00
e-Money ownership	
Only e-Money M	38.00
Other e-Money product	62.00
Earnings (million)	
<IDR 2,5	0.03
IDR 2.5-5	0.17
IDR 5-7.5	48.00
IDR 7.5-10	14.00
> IDR 10	18.00
e-Money usage	
Never	26.00
1-2 times	47.00
3-4 times	20.00
5-6 times	3.00
>6 times	4.00

Table 4: Average value of each variable

Variables	Average
User acceptance	4.83
Security	5.53
Infrastructure	4.43
Socio-cultural factor	4.54
User convenience	4.05
User preference	3.37

Quantitative data analysis: The variables used in the research were analyzed from questionnaires results and each variable is evaluated using its average value. Each variable average value is shown in Table 4. The result shows that user preference in using e-Money M has the lowest value of 3.37. Meanwhile e-Money security has the highest value of 5.53. User acceptance, socio-cultural factor, infrastructure and user convenience in using e-money are considered to be good with value 4.83, 4.54, 4.43 and 4.05, consecutively.

As there is an open question about user difficulty in using e-Money M, some of the respondents filled out the difficulty and challenges in using e-Money M as follow:

- Limited number of merchants that has collaboration with e-Money M
- e-Money M cannot be used for offline transactions
- Lack of familiarity of e-Money utilization as customer more accustomed using electronic payment methods like transfer, credit card and debit card
- Other e-Money product are more attractive
- e-Money M does not have mobile version
- e-Money M top-up charges fee for interbank ATM network

Qualitative data analysis

Interview result with e-Money M customer: The first obstacle identified was customer habit in using transfer, debit or credit card as the payment methods. Customers have already comfortable using the payment methods that already existed before the emergence of e-Money. According to the respondents, the needs of online transactions already met with payment methods other than e-Money. Therefore, the emergence of e-Money is not considered to be attractive because customers need to learn how to use and get used to it when they do not have to use it.

Second obstacle faced by customers is additional cost they need to pay when adding the balance in their e-Money account. e-Money M can only be charged via interbank ATM network and e-Money M physical counter. When the counters are still limited customers tend to choose to charge the e-Money via interbank ATM network. This method requires customers to pay the interbank transfer fee.

The last obstacle is the limited usage of e-Money M. Customers can only use the e-Money M for online transaction with certain merchants. They expect e-Money M can be used for various types of electronic payments, both online and offline.

Interview result with e-Money M manager: e-Money M has faced a fierce competition in e-Money market. In Indonesia, there are 20 electronic money issuers which have received permission from Bank Indonesia. Some of them are banks and telecommunications companies which already have a strong consumer base. Meanwhile, the electronic money is a new payment system is still known by the people of Indonesia. e-Money must be able to compete with the 20 competitors of similar products to gain customers where the electronic money market is not yet fully formed.

In addition, e-Money M is a product from a company that was originally engaged in the business form of B2B (Business-to-business). With the development of electronic money products, companies must adapt quickly to be able to run the business in the form of B2C (Business-to-customer). e-money M managers see opportunities for cooperation that can take place between the electronic money issuer. One of them is to provide a facility to transfer funds between accounts of e-Money.

The survey results show that the user perceptions of e-Money M, availability of infrastructure and user convenience of using e-Money M are good. The variable in the survey that received the lowest score is the user

preference. This finding represents the tendency of customers to choose the products of e-Money M is lower compared to other e-Money product.

Based on the results of open question in the questionnaires and interviews, the barriers of using e-Money M on the customer side are limited merchants, limitations transaction channels, additional transaction fee, competitor's of similar products and socio-cultural factors of using other e-Payment methods other than cash.

From customer point of view, user preferences of using e-Money is low (based on the questionnaires) are caused by the limited purposed of e-Money M (based on the interview). Customers need a practical payment method that can be used for various type and kind of payment. For now, the limited number of merchants that partnered with e-Money M become a weakness for e-Money M when other e-Money products has more number in merchant and type of payment based on Table 1. Another shortcoming for e-Money M is the additional fee that customers have to pay when filling the balance in to their account. This condition makes customer to reconsider in using e-Money M.

Barriers for e-Money M development from manager side are the lack of experience in running a B2C business models and the difficulty of acquiring new customers. Based on such constraints, it can be seen that challenges faced by e-Money M is the level of competition of similar products is high, the influence of substitutes such as credit and debit cards as well as the high expectations of the customer to obtain electronic money service that is safe, comfortable and reliable.

From the view of customers and managers, it can be seen that e-Money M have a fierce competition with other e-Money product. e-Money M functionally needs to be enhanced and improved to be able to compete with other similar product. The number of merchant and type of transaction has to be increased. In addition, e-Money M needs a good marketing strategy to attract customers. Considering the competitor products are launched by companies that already have a good customer's base, e-Money M will has to intensifying its marketing activities.

CONCLUSION

This study identified six variables as e-Money development barriers and challenges. They are user

acceptance, security, infrastructure, socio-cultural factors, user convenience and user preferences. e-Money M as one of e-Money product in Indonesia has been identified to be not performed well in Indonesian market. The study then conducted to evaluate which barrier has most contribution for this condition. Based on the survey results and interviews, it is showed that user preferences becomes a significant factor in the use of e-Money M. Users are more likely to use similar products as their means of payment. The reasons for this condition are the limitation on e-Money usage and weak customer's base. In order to minimize these obstacles e-Money M need to add functionality and improve marketing activities.

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