

Driving and Inhibiting Factors of Branchless Banking Technology Adoption in Rural Community

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Abstract

This research is aimed to understand the perception of rural people toward Branchless Banking and to explore the factors that encourage them to adopt Branchless Banking technology in Indonesian context. Innovation diffusion theory was used in this research. Variables consisted of relative advantage, compatibility, complexity, trialability, and observability used to explore the perception of rural people toward Branchless Banking. Questionnaires were distributed to people in Kuncen village, Salatiga Indonesia. We found that relative advantage and complexity are factors that drive Kuncen village people to adopt Branchless Banking. Thus, compatibility, trialability, and observability are the inhibitors for Branchless Banking adoption.

Keywords: *Branchless Banking, mobile payment systems, technology adoption, financial inclusion*

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1. INTRODUCTION

More than 2.6 billion people in the developing world living without a bank account of any sort and less than 30 percent of this population having access to finance, banking is simply not a mass market proposition (Dermish *et al.*, 2012). According to Mas (2010) payment or money transfer services are the building blocks of financial services, so fulfilling people's payments needs should help address the yawning gap in access to finance. According to the World Bank, only 20 percent of the 250 million Indonesia's citizens has an access to financial services (asia.nikkei.com). These number is lower than other countries in Southeast Asia. Infobanknews.com also stated that on 2013 majority of Indonesia's unbanked people lived in rural area, which is reached approximately 41.6 million people (infobanknews.com). Common demographic characteristic in Indonesia is high-income earners are concentrated in major cities, leaving rural towns and villages with little access to financial services.

Therefore, low-income group lack of financial literacy and Micro Small Enterprises (MSE) have limited opportunities to expand their business. The minimum access toward financial services in remote village communities caused economic growth in these areas to be hampered and enhance the dominance of loan sharks.

In 2012, Indonesia's government through Bank Indonesia launched a nationwide campaign on financial services without physical branches to help boost access to the banking system in rural areas, which is popularly known as Branchless Banking. The program aims are to bring vast numbers of the unbanked into a more formal financial system, revolutionize the way they manage their money, and to boost the performance of microfinance institutions (MFIs). The implementation of Branchless Banking in Indonesia emphasizes on the mobile payment service (MPS) because of the quite high number of mobile phone service users in Indonesia, which has reached 84% of the total population of Indonesia (www.emarketer.com). In early May 2013, Bank Indonesia commenced a pilot project to test the implementation of Branchless Banking program in Indonesia (kpmg.com). This project involved five banks (Bank Rakyat Indonesia, Bank Mandiri, CIMB Niaga, Bank Tabungan Pensiun Nasional, and Bank Sinar Harapan Bali) and three largest mobile networks operator (Telkomsel, Indosat, and XL Axiata) in eight provinces. Information gathered from this pilot project are there were limited commitment of participants bank in terms of marketing funds, hardware innovations and number of persons responsible to the project.

Branchless Banking implementation in Indonesia began to take off in 2014 with the use of electronic payment system in order to support the transfer of government direct cash assistance to poor families in several provinces in the country (www.telecomreviewasia.com). Banks start to develop different platforms and approaches to increase its branchless Banking program. Banks should ensure to provide a good platform, easy to use, suitable with the needs and characteristics of rural communities. Therefore, understanding the needs and perception of demand side of Branchless Banking technology itself are very important to improve the success level of Branchless Banking implementation in Indonesia. This study aims to explore the driving factors that encourage rural communities to use Branchless Banking in order to get formal access of financial services. Moreover, this study also identify the inhibiting factors that hinder village communities to adopt Branchless Banking. The significance of this study is to give information to the banks related with the development of Branchless Banking technology platforms based on demand side needs. This paper makes three contribution related with implementation of Branchless Banking as part of the government's efforts to attract more customers to formal financial services, especially in rural areas. The first is identification of rural communities' technology adoption level based on behavioral approach in adopting an innovation stated by Rogers (2003). The identification of technology adoption level in rural setting is important to understand, since the implementation of Branchless Banking is considered as a new technology in Indonesian banking industry. The second contribution of this paper is the identification of driving and inhibiting factors of rural communities to adopt Branchless Banking which carried out on the basis of Diffusion of Innovation

(DOI) theory. The third contribution of our work is the identification of potential agents to support the dissemination and adoption of Branchless Banking application by rural communities.

2. THEORETICAL BACKGROUND

2.1. Branchless Banking

The traditional approach to growth in the banking industry--building more brick-and-mortar bank branches--will however not always be a profitable proposition, especially in rural markets (FRPT, 2015). Powell (2014) noted that the average cost to open a branch is up to \$2,5 million and maintaining that same branch can cost more than \$400,000 annually and banks need to eliminate the congestion and overhead of the branch in order to survive in the future.

Carmel and Scott (2009) defined Branchless Banking as a form of distribution or financial services to communities outside of traditional bank branches by using Information and Communication Technology (ICT). There are two types of Branchless Banking practice, additive and transformational (The Economic Issue of the Day, 2009). Practice of additive Branchless Banking is run by providing additional media to serve the customers of existing financial services, for example Automated Teller Machines (ATMs), Point of Sale (PoS) or Internet Banking to provide more financial services to consumer banking.

Three elements are crucial to the successful design and delivery of Branchless Banking: customer capabilities, the Branchless Banking service, and the Branchless Banking operations (Lee and Jaramillo, 2013). Financial capabilities involve building the knowledge, skills, and self-efficacy, including trust, needed to inform and support customer behavior throughout the adoption process for Branchless Banking. Customers need to understand, or have knowledge of, what the financial product is, how they can use it, and the value it brings to them so that they can make an informed decision about whether to sign up and use it. Customers also need to have the skills to be able to use the service to transact. Finally, customers need to have self-efficacy and trust the Branchless Banking service and the Branchless banking service provider, and have the self-confidence to use the service on their own.

The second element for the successful design and delivery of Branchless Banking involves the design of the service, which includes the financial product and the technology through which it is delivered. This design should be based on an understanding of how customers currently manage their money and respond to their needs and financial realities. The product should preserve the same core benefits that the customer values in their current way of managing money and offer additional benefits such as time or cost effectiveness or added security in order to persuade customers to take up this new service. The bottom line is that there should be a significant enough value proposition to shift to the new Branchless Banking service for clients to take the time to develop the knowledge, skills, self-efficacy, and trust in the new service.

The third element in Lee and Jaramillo (2013) framework, operations, involves the experience of the customer in accessing the Branchless Banking service. Key to ensuring a good service experience is the setting up of

operations and processes that take into consideration the customer's capabilities to manage them effectively. This includes setting up operations that provide easy and reliable access to the Branchless Banking service, either through the delivery channels or through the technology platform itself. Furthermore, the Branchless Banking agents and front-line staff also need to have the capabilities required to effectively serve customers.

2.2. Acceptance of Technology Adoption

The practice of transformational Branchless Banking are in the form of creation of new media to expand and serve people who have not accessed formal financial services. The application of Branchless Banking by mobile phone media which is promoted in Indonesia in terms of MPS (Mobile Payment System) is included in the category of transformational Branchless Banking.

Mardikano (1982) cited in Mizar et al., (2008) defined adoption as the acceptance or use of ideas, tools (machines) or new technology by adopter which is delivered by the carriers of the technology. Diffusion is the process of communicating an innovation technology through specific communication channels to members of a social system; while innovation is an idea, practice, or object that is considered new (Al-Qeisi, 2009). Diffusion occurs at a broader level in the community, while adoption occurs in smaller units, such as companies and individuals (Wahid and Iswari, 2007).

Rogers (2003: 14-16) suggested five attributes in the Theory of Innovation Diffusion determines the adoption of new technologies. The first attribute, *Relative advantage*, indicates the extent of technological innovation over previous innovations. These benefits can be seen from the standpoint of technical, economic, prestige, comfort and satisfaction. If people feel that a technological innovations provides high *relative advantage*, then they will adopt the technology. The second attribute, *Compatibility*, is the suitability of a technological innovation with the adopter value, adopter experience, and adopter needs. The third attribute, *Complexity* (Rogers, 2003: 15), refers to the level of difficulty of understanding and use of a technological innovation. The more complex and sophisticated the technology innovation, the more difficult it is to be adopted. The fourth attribute, *Trialability* (Rogers, 2003: 16) is the extent to which a technological innovation can be tried and tested. The last attribute is *observability*. This attribute is related to the extent to which the results of adoption of technological innovations can be observed and communicated. If an innovation can be tried before it is adopted, it will increase the willingness of individuals to adopt new technologies (Wahid and Iswari, 2007).

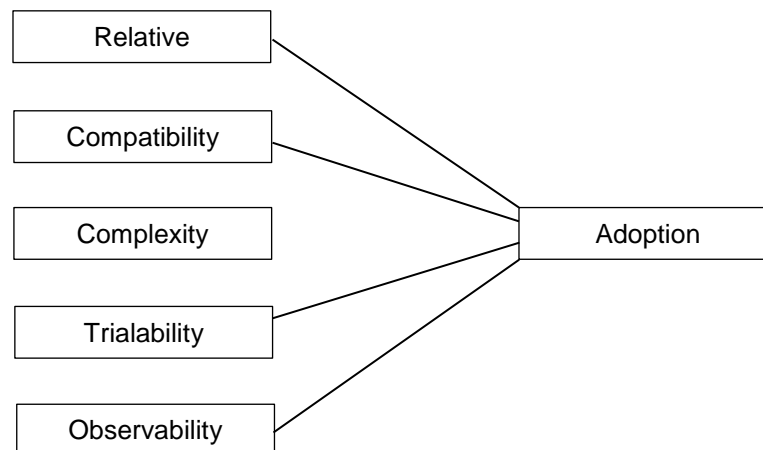


Figure 1. Theory of Innovation Diffusion (Roger, 2003)

New technology adoption intention is also determined by the characteristics of adopters (Bellaaj et al., 2008; Mizar et al., 2008). Roger (2003) stated that based on individual characteristics, such as socio-economic conditions, behavior in adopting an innovation can be divided into five categories: *innovators*, *early adopters*, *early majority*, *late majority*, and *laggards*. Roger (2003) described the behavior toward the adoption of new innovations forms the normal distribution curve.

Empirical studies stated that *innovators* are usually younger individuals (Elias et al., 2012; Suharti et al., 2013). The old aged individuals tend to belong to the group of *laggards*, they are very slow to adopt new technologies because they implement step by step adoption process starting from the observation to the implementation stage. The adoption will happen if they are very convinced with the costs and benefits from the adoption of new technologies (Hendryx, 2008).

3. RESEARCH METHODS

The population in this study was rural communities of Kuncen Village, Kota Salatiga, Indonesia. Kuncen Village is one of remote area in Kota Salatiga with limited access to formal financial services. This study was carried out in the Kuncen Village, this region has a considerable economic activity in which most of the population are cattle farmers and factory workers. On the other hand, the majority of the population lacks of knowledge and access to formal financial services. Therefore, the condition of Kuncen Village is in accordance with the target of Branchless Banking program in Indonesia. “*Rekening Ponsel*” was chosen as an example of Branchless Banking product in this study since “*Rekening Ponsel*” was awarded as the best digital brand of the year in 2015.

The research process began with socialization activity of “*Rekening Ponsel*” by CIMB Niaga. The process followed by survey and in-depth interview toward 50 respondents who were attended the socialization of “*Rekening Ponsel*”. The survey was conducted in two parts, first identifying the adoption level of the villagers, and second, identifying driving and inhibiting factors of the

technology adoption. Descriptive analysis was conducted to summarize data in a meaningful way which allows interpretation of the data. Data collected in this study consists of the technology adoption level, driving and inhibiting factors to use "*Rekening Ponsel*" as a new banking technology.

4. RESULTS AND DISCUSSIONS

Judging from the level of education, the majority of respondents in this study had level of education equivalent to Junior High School and Senior High School with the percentage of 36% each. The respondents with undergraduates levels of education were very low, only two respondents for each level of education. However, all respondents in this study have high level of literacy and education that was sufficient because all the respondents had the opportunity to get education, even though 24% of them only had six years of basic education (elementary school equivalent). High level of education allows respondents to learn new things easier.

Respondents in this study recognized the names of the banks in Indonesia, such as BRI (Bank Rakyat Indonesia), CIMB Niaga, Bank Mandiri, BNI (Bank Negara Indonesia), BCA (Bank Central Asia), and Danamon. BRI (state owned bank) is the most recognized banks by rural communities (76%). This is not surprising because the main target market of BRI is rural communities. In addition, BRI is a national bank that has the largest banking branches with the widest range to remote rural areas.

Associated with the use of *Branchless Banking* products of CIMB Niaga "*Rekening Ponsel*" (*Rekening ponsel* is a branchless service that breaks through barriers, instantly giving millions access to financial services that would have otherwise been inaccessible <https://www.cimbniaga.com/>) which combines the information technology with banking services to increase access toward formal financial services has very high chances because the majority of respondents have mobile phones (88%). When using "*Rekening Ponsel*", the phone number becomes the identity of the account number, so the behavior of changing phone numbers frequently because of an interest in a particular cell phone provider promotion would be an obstacle in the use of "*Rekening Ponsel*". However, the behavior of changing mobile phone numbers which were found in village communities Kuncen, Salatiga Indonesia was very low. Only 8% of respondents stated that they often changed their phone numbers. It gave information that the adoption of Branchless Banking "*Rekening Ponsel*" to expand financial inclusion of Kuncen villagers was potential. Moreover, it was found that many respondents in this study had not had any account in a bank, which was equal to 62%.

The results described below suggested that relative advantage and complexity attributes were the driving factors of Kuncen villagers to adopt Branchless Banking technology, particularly "*Rekening Ponsel*". While the observability, trialability and compatibility attributes were the inhibiting factors for the community in adopting the technology.

Driving and Inhibiting Factors of Branchless Banking Technology Adoption in Rural Community (Rosaly Franksiska, Yenny Purwati, Paskah Ika Nugroho, Arief Widodo)

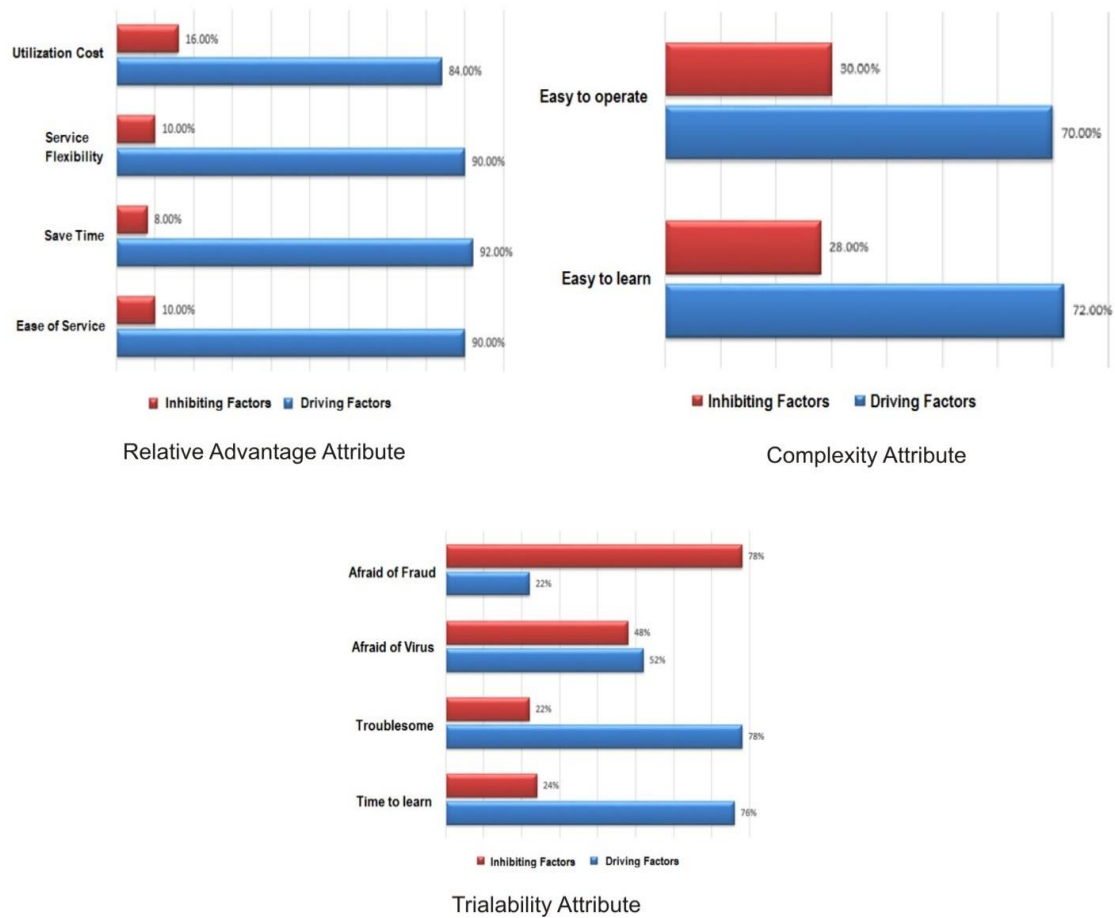


Figure 2. Driving and Inhibiting Factors of Branchless Banking Adoption

Kuncen villagers' intention in using *Branchless Banking* technology, particularly "*Rekening Ponsel*" is quite high. It can be seen from the data of level of Kuncen villagers' adoption, in which more than 50% of the people are included in the category of innovators (28%), early adopters (8%), and the early majority (24%); as shown in Fig. 3.

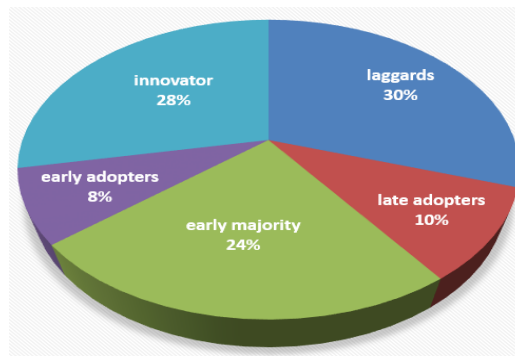


Figure 3. Branchless Banking Adoption Level

Innovator group are individuals who are actively seeking information about new ideas and having the ability to understand complex technical information and face the uncertainty. *Early adopters* are the people whose opinions are

heard and respected by many people. This group is a role model for other members in a sub-system. *Early majority* is an individual who is willing to make an initial investment to a new technological innovation to ensure the level of security on investment (Roger, 2003). The quite high percentage of these three adopter groups reflects the good acceptance of the rural communities about *Branchless Banking* technology in facilitating them to access formal financial services.

The discussion of the driving factors of adoption in this study based on the attributes of Diffusion of Innovation theory proposed by Rogers (2003: 14-16). The majority of respondents gave a positive assessment toward all indicators used to measure the relative advantage attribute which includes the aspects of ease of service, time efficiency, and flexibility of service. Respondents said that "*Rekening Ponsel*" service will save a lot of time in the utilization compared to if they had to queue at the bank. Similarly, the *Branchless Banking* service that can be accessed 24/7 provides high service flexibility, so that banking services can be used beyond bank's operational hours. Utilization of banking services would have cost consequences. It is also applied to the use of the "*Rekening Ponsel*" service where the fee which is charged for the cost of mobile texting by the mobile operators. More than 80% of respondents considered that the benefits of using the "*Rekening Ponsel*" were greater than the costs. Overall, the *relative advantage* attribute offered by the "*Rekening Ponsel*" exceed traditional banking services, so it can be concluded as a motivating factor for rural communities (village Kuncen) to use this service.

Compatibility attribute is concluded an obstacle for people in Kuncen village to adopt "*Rekening Ponsel*". Some of the things mentioned by the respondents were related to the *compatibility* attribute that caused their reluctance to use "*Rekening Ponsel*". The first aspect was respondent's inability to save extra money, 42% of respondents said they had not or did not have to save money because their income had been spent entirely to meet their daily needs. But banking services nowadays does not constitute saving only, but also spending, such as payment for electricity bill, water bill, tax, and social security fee. Thus, the community can still take advantage of "*Rekening Ponsel*" technology. Based on an interview with one of the respondents, rural communities tended to have a perception that they were required to have large amounts of money in order to save in a bank. In rural communities, besides they had to fulfill their daily needs, they also had to bear the considerable social costs, such as donations for their relatives who were getting married, death or other social ceremonial activities Therefore, sometimes the cash that they had was very minimal, so that they thought it would not be worthy enough to be deposited in the bank. In addition, if they needed some money for unexpected matters, it would be troublesome to take cash at the nearest ATM or branch office while the amount was not much.

The second aspect was the locations of the ATM (Automated Teller Machine) or branch offices that were far from their houses; there were 27% of respondents who stated it as a constraint of adopting the "*Rekening Ponsel*". In using the "Phone Account" service, it is indeed necessary for the public to visit the nearest ATM or branch office if they want to take the cash. It became a

problem because the location of the nearest CIMB Niaga ATM was far away from the respondents' residences. Especially if there was a need to take the cash at night, it was quite difficult for people who did not have private transportation because the distance was quite far from the highway. Besides, the condition of the road was dark because of the lack of street lighting from residential areas to the highway. The declining ability of sight sense especially for old aged people, made it difficult for them to use mobile phones, even though for them the compatibility of "*Rekening Ponsel*" with other banks allowing them to do inter-bank transfers is one of the driving factors to adopt this technology.

Complexity was the third attribute of the driving factors of adoption. *Complexity* includes the ease of operation and how easy the *Branchless Banking* services or products can be learned. The result which is shown in Fig. 3 showed that according to the public's perception, this *Branchless Banking* service or product has low level of complexity. Low complexity will be the driving factors for the adoption of this technology. Respondents noted that the operational ease and the convenience of "*Rekening Ponsel*" service encouraged them to adopt it. The reason given by some of the respondents was their anxiety that they were not able to operate and could not ask other people because the number of people who used mobile phones was still low. By age, people aged under 50 years stated that "*Rekening Ponsel*" was easy to learn and easy to operate, so it was not a limiting factor in adoption. As much as 84% of women respondents had the perception that the technology is easy to learn, while the male respondents who believe the same thing was only 59%. However, more male respondents (72%) had the perception that the "*Rekening Ponsel*" was easily operated than female respondents (68%). Respondents acknowledged that "*Rekening Ponsel*" was not too difficult to use, due to its ease of use. This is related to the fourth attribute, trialability.

High trialability level will cause high adoption (Rogers, 2003: 16). In this study, the factors mentioned above were measured by several indicators, such as: time to learn, the hassles level to try, worries about viruses or scams. The percentage of respondents' responses can be seen in Fig. 2, factors that inhibit the adoption was the concerns about fraud which appeared on respondents, as much as 52% of respondents worried about fraud, so that it caused a reluctance to try out this new technology. Fraud through mobile phones had been happening a lot, telephone toll fraud made the respondents anxious because cell phone number acts as bank account. This fear of fraud was much greater than the fears of the virus that could damage the cell phone; 48% of respondents did not worry, the rest of 26% was undecided, and 26% claimed to be more anxious about the virus. The new operating system that could not be fully trusted and system security that was not guaranteed had caused reluctance of respondents to adopt this technology. If the banks can give assurance to the lack of fraud and virus problems, then it is likely that the respondent will try or learn about it.

This concern could be rooted from the ignorance or lack of information that was received by the respondents. Some respondents had the perception that these services would actually help them, if the things mentioned above could be

guaranteed by the banks and the government. To overcome the reluctance of community in the use of new banking technologies, such as the "*Rekening Ponsel*", the respondents expected the village officials to do three things; becoming a liaison between the community and the bank, becoming the first users of the technology, socializing and providing more counseling. In line with this, a recognized third party, such as the Universities, are expected to provide counseling and socialization with more regular and detailed ways, so that rural communities will be willing to try new things. Banks and governments, on the other hand, are expected to be strong motivating actors for respondents to adopt the new technology, if they give security guarantee and are able to convince the public that the new technology was safe to use, and is guaranteed by the government. Besides security, the government and banks are expected to support through facilities and technology infrastructures that enable financial inclusion into the countryside.

The fifth attribute from the drivers of adoption is observability. Along with considerations thought by Hoppe et al., (2001), observability attribute is difficult to study because the banking activities data is confidential, so that it is difficult to observe the banking activities of an individual. Thus in this study, the factors were studied through socialization and advertising. Respondents noted that the socialization of the "*Rekening Ponsel*" had not been done by the banks, 14% of respondents stated that it impeded them to adopt this technology. Although there is "*Rekening Ponsel*" ads, but the description on the ads is still limited, so the benefits are not obvious, especially since the ads is in urban context. The small number of people who have used the "*Rekening Ponsel*" also lessen their intention to adopt; 16% of respondents stated that this was also the obstacle.

The driving and inhibiting factors can also be depicted from their answer during interview. The driving factors mentioned by most of them is that "*Rekening Ponsel*" is practical. Practicality in terms of not having to remember the bank account number, which usually consist of long random numbers, because their phone number is their account number. Other reason that drive the community to use "*Rekening Ponsel*", is the ability of doing several banking services without using ATM, just by using cellular phone, just like internet banking or mobile banking. Two of the respondents mentioned that they usually forget to bring ATM, but rarely forget to bring their cellular phone, so this technology is suitable for them. Three respondents doubt that they would be able to use this technology, because they are not familiar with this technology.

5. CONCLUSION AND LIMITATION

This study found the same thing with Suharti et al., (2013) and Elias (2012), in which a group of innovators in the adoption of new technologies is younger individuals. Respondents aged 15 to 24 years were a group of innovators with a percentage of 42.9%. While the older respondents in this study were at the age of 55 to 64 years were belonged to laggards group (66.7%).

In terms of sex, the individual adopters of technology were the innovators group which was turned out to be dominated by the female respondents. This is in contrast with the common perception that men are usually positioned more technologically savvy than women. This finding is

suspected because of the phenomena that occur in rural areas, especially locations that are close to industrial areas, where male tend to be unemployed in a formal sector, while the women work as a labor in the factories. Kuncen village, Salatiga, is one of the locations which are affected by the relocation industry of Jabodetabek, so that there are many factories in the region, particularly the textile factories. The managements of the factories tend to hire more female employees as females are usually more careful at work. Experience and working environment broaden the females of Kuncen Village's knowledge, including their insights to technology. It has encouraged the female respondents of Kuncen village to have a more positive intention in adopting the *Branchless Banking* technology.

As outlined previously, respondents felt that the Branchless Banking technology was easy to learn and easy to operate. Although they still have some anxieties in testing or trying it, such as viruses and scams, but the community's intention to adopt a *Branchless Banking* technology is quite high. It can be seen from the data of adoption level of Kuncen villagers, in which more than 50% of the people were included in the category of innovators (28%), early adopters (8%), and the early majority (24%). However, things like compatability, some of the aspects of trialability, and observability became the obstacle for the respondents to adopt it.

Based on the responses of the respondents, it is expected that the parties, among others: the banks, the chief of the village and universities are expected to provide education on the latest information of banking technology more frequently and regularly. Whereas, the government is expected to provide security and guarantee the rights of users of new banking technologies. Future studies can be conducted with an experimental study comparing several products of *Branchless Banking* in Indonesia which are based on mobile phones in order to design MPS technology which is appropriate to the needs and characteristics of rural communities.

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