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# Streamlining Mobile Banking into Loan Repayment System for Microfinance Institutions

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## ABSTRACT

*The competitive environment of microfinance industry has indeed forced microfinance institutions (MFIs) to balance their dual goals of outreach and sustainability. Based on this, the focus of this current research is placed on its objective to study how the implementation of mobile banking would be better to streamline the accounting information system for MFIs, specifically with regards to loan repayments. To better understand the current practice of mobile banking in MFIs, this study was conducted using a qualitative case study on Amanah Ikhtiar Malaysia (AIM), one of the biggest MFIs in Malaysia. It was found from the study that the usage of mobile banking can streamline AIM's loan repayment system and increases its productivity by having shorter meeting times with recipients. Findings from this study shed lights on the critical role of accounting information system to adapt with applications of new technology, which could also be relevant for other organisations in various financial sectors. This study has highlighted the role of accounting information system in MFIs, especially with regards to its loan repayment system. As such, practitioners will be able to consider whether the lessons learnt from this case study can help them to solve similar issues within the context of their organisation. Findings from this study has significantly contributed to the microfinance industry by focusing on the role of mobile banking to improve loan repayment system in MFIs for service enhancement, hence becoming model institutions which practice modern accounting techniques through the usage of technology.*

**Keywords:** Mobile Banking; Case Study; Microfinance; Loan Repayment; Accounting Information System.

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## INTRODUCTION

For many years since the establishment of Grameen Bank, microfinance institutions have been one of the great sources that the poor and unprivileged are able to gain access towards financial services. Funding provided by microfinance institutions throughout the years have been able to help aspiring businessmen and businesswomen from the poor and lower income group to enhance and expand their business activities, while at the same time help them to become self-sustainable and eventually alleviate poverty. Many microfinance institutions (MFIs) that began as nongovernmental organizations (NGOs) as they entered the financial business for social reasons has now grown and became more business oriented (Paul, 2017).

Essentially, most MFI managers were found to gradually lose their ability in maintaining personal contact with what is happening at the field level and realize that they cannot adequately manage their portfolio and financial operations without better information management (Consultative Group to Assist the Poor, 2009). In addition to that, this effective poverty reduction strategy needs to improve its accounting information system as most of its repayment system is still being executed manually. For example, one of the agendas of group meeting for microfinance recipients in Malaysia is to collect the amount of loan which is due for that month via cash. This method is at high risk as staffs of the microfinance institutions are exposed to risks of being robbed and frauded. In addition to that, the existing system is slow and prone to human errors (Rozzani, Mohamed & Syed Yusuf, 2017).

In better managing their own accounting for repayment system, particularly transactions, internal savings, loan approval processes, and delinquency management, accounting information system plays a significant role in assisting MFIs to provide timely and accurate information for their stakeholders (Microsave, 2008). This system is also designed to support accounting functions in preparation of financial statements (Romney & Steinbart, 2012). As MFIs become larger and more diversified, their organisational management relies heavily on financial statements as a vital source of information for its preparation of budget, which is an internal tool for analysis, decision-making, and control (Faure, Brummans, Giroux, & Taylor, 2010).

Computerisation of accounting information system provides value-added services that can engage with latest information and communication technology (ICT) (Masrek, Ahmad Uzir, & Khairuddin, 2012). Convergence of accounting information system with development of ICT has made it possible for MFIs to start implementing banking technologies, such as mobile and internet banking, into their operation cycle. This unique diffusion of banking technologies with ICT contributes greatly toward major positive changes in the aspect of streamlining accounting information systems across MFIs (Quan, Li, & Wang, 2013).

Not only that, numerous researches (The Louis Berger Group Inc., 2011; Senthe 2012; Weber, 2012; Kauffman & Riggins, 2012) had indicated that ICT has an impact on poverty eradication. It is broadly viewed that innovations related to banking technology have triggered theory building within ICT environment (Weber, 2012). Kauffman and Riggins (2012) contended that microfinance industry has started to shift towards a maturing stage, where ICT becomes an important driver in facilitating financial services to the poor. Facilitating financial services to the poor becomes a necessity, as poverty alleviation is a critical factor in developing countries' move towards enhancing their economic development. The competitive environment of microfinance industry has forced MFIs to balance their dual goals of outreach and sustainability. In coping with this situation, ICT is viewed to be an instigator in adapting with new environment to maintain MFIs' sustainability. This shows that computerised accounting information systems under an environment with competitive application of banking technologies may improve the state of microfinance industry (Kauffman & Riggins, 2012).

Although applications of banking technologies in MFIs have been highly encouraged by the Central Bank of Malaysia, implementation of mobile banking within this industry is only 15.2 per cent out of the entire mobile phone users totalling 7 million, which was recorded as at 30<sup>th</sup> September 2014 (Central Bank of Malaysia, n.d.). Therefore, it can be said that Malaysian MFIs have yet to accomplish a broad instrumentation of mobile banking in managing microfinance facilities, which includes the area of loan repayment. In addition to that, there have only been few researches conducted on the usage of accounting information system for loan repayment in MFIs, especially in Malaysia.

Based on this, focus of the current research is placed on its objective to study mobile banking usage in streamlining accounting information systems for MFIs, specifically on the shift from cash to computerised mechanism for loan repayment. Findings of the study intend to provide better understand how mobile banking would assist in streamlining loan repayment system. These findings would hence support findings from previous researches on mobile banking (e.g. Greenacre, 2009; Kauffman & Riggins, 2012; Weber, 2012; Senthe, 2012; and Gant, 2012), especially on the application of mobile banking within an environment to provide financial services to the poor. In practice, MFIs will be able to become model institutions which practice modern accounting techniques through the usage of banking technology, such as mobile banking, to improve their services. Implementation of good repayment system should be able to contribute towards improvement on effectiveness and efficiency of MFIs' financial and social performances, thereby increasing their sustainability.

The remainder of this paper is organized as follows. Section 2 discusses on previous studies relating to mobile banking, its usage in streamlining loan repayment system, and current practices of mobile banking among microfinance and poor communities. Methodology and research design used in the current study are subsequently described in Section 3, while findings and discussion are presented in Section 4. Finally, conclusions are provided in Section 5.

## LITERATURE REVIEW

Mobile banking has been defined by Consumer Research Section of Federal Reserve Board's Division of Consumer and Community Affairs (2012) as the process of using a mobile phone to get financial accounting information and conduct transactions with their financial institutions. According to Tiwari, Buse, and Herstatt (2006) mobile banking application makes it possible to complete bank-related transactions, e.g. checking account status, transferring money and selling stocks, via mobile devices, regardless of the user's current location. In a similar line, mobile banking refers to provision of banking and financial services with the help of mobile telecommunication devices such as cell phones, personal digital assistants (PDAs), and smart phones.

As an application of mobile commerce (m-commerce), mobile banking operates in a mobile environment which holds the following attributes: ubiquity, convenience, interactive, personalization, and localization (Tiwari, Buse, & Herstatt, 2006; Turban et al., 2010). A past study conducted by Basole (2006) indicated that the mobile approach on ICT has become an integral component in today's enterprises due to its ubiquitous character and its ability to get consumers connected everywhere. By having better mobility, users can carry a cell phone or other mobile devices wherever they go (Tiwari, Buse & Herstatt, 2006). This unique feature enables users to initiate real-time contact with commercial and other systems at any time and any place they go. Users carrying an open mobile device are also reachable at any time instantly. This banking technology significantly transforms business processes and services for enterprises to improve cash flow, hence allowing for better resource allocation. This transformation subsequently improves employees' productivity, effectiveness, and efficiency. As the technology progresses, the improved business operation creates new competitive advantages and business agility within the industry.

As a banking technology (Laudon et al., 2009; Turban et al., 2010), mobile banking is fastly emerging to become an important function within the financial services industry. Not only that, mobile banking is also being utilised to facilitate efficient financial services to a vast number of people without access to the formal banking systems and financial services (Senthe, 2012). This is because mobile phones are easily available to consumers, hence becoming a standard aspect of their daily lives. This ability of MFIs and their recipients to transact in different locations makes mobile banking a preferable medium to be used for loan repayment.

### **Mobile Banking Usage to Streamline Loan Repayment System**

Tiwari, Buse, and Herstatt (2006) defined m-commerce as any transaction involving transfer of ownership or rights to use goods and services, which is initiated and/or completed by using mobile access to computer-mediated networks with the help of an electronic device. Mobile banking is an m-commerce application which has been seen as a safe mode to provide financial transactions in remote and rural areas. Kauffman and Riggins (2012) saw that ICTs were changing the microfinance industry, specifically on innovation of mobile banking, internet usage, and

connectivity in decreasing the digital divide. Cashless transactions enhance security in combating the problem of transporting cash in and out of villages, also in avoiding fraud. It is undeniable that element of IT in financial services industry offers “cheaper, better, faster” operational connectivity (Kauffman & Riggins, 2012).

According to Quan, Li and Wang (2013), m-commerce has a large effect on traditional corporate accounting model with the progression of information age. This effect requires timely, correct, and meaningful accounting information to be produced in implementing functions such as planning, organizing, and controlling, by the management for decision making purposes; as well as monitoring activities for enterprises. Hence, accounting information system has now become synonymous with computerised systems. Implementations of up-to-date computerised systems and software have made computers much easier to be used, as well as enabling much faster and more accurate accounting tasks (Abu-Musa, 2006). Hauswald and Marquez (2003) suggested that technological advances from computerised accounting systems produce better processed information, which subsequently improve organisational productivity. Unfortunately, up-to-date computerised systems and software had led to employees’ accidental entry of bad and inaccurate data, which had resulted in accidental destruction of data. Introduction of computer viruses became top threats in a microcomputer environment (Abu-Musa, 2006). In response to the incident, many ICT developers have been continuously programming anti-virus solutions to overcome threats and improve the efficiency of the accounting information system used by various businesses worldwide.

Masrek, Ahmad Uzir, and Khairuddin (2012) argued that banking practitioners in Malaysia did not have any choice but to embrace and implement mobile banking because if they do not do so, the risk of them losing their customers is great. However, the forced implementation was because most commercial banks nowadays are starting to see evidences that mobile banking is an effective tool that is able to retain their existing and technology-savvy customer base as it offers value-added and innovative services. Consumer’s word of mouth has been efficient in promoting mobile banking to new consumers from corresponding sections of the society as they find satisfaction when they use suggested application from their mobile phones (Tiwari & Buse, 2007). Not only is mobile banking an effective



tool for commercial financial institutions, this technology is also closely associated with MFIs. Looking from recipients' perspective, they are not a homogenous populace as they are culturally, socially, and economically different from the rest of society. However, what is common among them is that they live in a cash-based economy. These individuals can only afford to purchase small amounts of goods at a time, where purchasing is done regularly (Senthe, 2012). These characteristics had actually caused MFIs (AlHuda Centre of Islamic Banking and Economics and Akhuwat, 2013) to carry a burden of maintaining small amount of loan repayment manually, but it comes with a high volume of transactions among recipients. Providing financial services individually becomes very costly. To overcome this situation, mobile banking is argued to be the tool that can reduce risk as it decreases manual collection in areas covered by designated MFI officers (Senthe 2012; Kauffman & Riggins 2012; Weber 2012).

The reason why mobile banking becomes such an effective technology, as argued by previous research, is because this technology has an ability to reach microfinance recipients in remote areas. Microfinance recipients have always been associated with staying in remote areas; hence many MFIs throughout the world are being challenged with the issue of assessing their vast majority of poor recipients. In finding a mechanism to assist with outreach among this group, mobile banking is seen as a cost-effective service delivery mechanism as it overcomes the issues of high cost in reaching out to recipients in the remote areas, resulting in enhancing the recipients' convenience. Technological impact of ICT towards the financial services industry, particularly mobile banking, plays an important role as it works as an intermediary between recipients and their MFIs. Practically, recipients who stay in suburban and remote areas are the ones who would extremely require mobile banking services. Furthermore, most individuals from lower income groups today can afford to purchase mobile phones (Abd Ghani, 2013). Hence, to achieve the economy of scale and sustainability for MFIs, adoption of mobile banking seems to be a feasible solution (The Louis Berger Group Inc., 2011; Senthe 2012; Kauffman & Riggins 2012; Weber 2012).

## **Existing Practices of Mobile Banking among Microfinance and Poor Communities**

In order to understand the existing practice of mobile banking in streamlining accounting information systems, this study had reviewed several initiatives which had implemented mobile banking usage by MFIs in several parts of the world.

Efforts to become donors and offer microfinance products to the underprivileged in war-torn countries were initially taken by the government of the United States of America. This had resulted to the establishment of United States Agency – International Development (USAID). This organisation introduced a mobile banking pilot initiative for microfinance services delivery through USAID-Tijara Provincial Economic Growth Program in Iraq. It was reported that the program has witnessed a distinctive progress ever since its commencement in 2003. By looking at this development, MobiCash was formally launched in 2010 to become the main mobile banking platform in Iraq and complement with the USAID program. In streamlining the program's loan repayment system, MobiCash makes it possible for recipients to check their bank account balances, also perform mobile-to-mobile and bank account-to-bank account money transfers. Furthermore, recipients can directly purchase mobile airtime, as well as purchase goods and services from registered merchants (The Louis Berger Group Inc., 2011). A conclusion was made that success to the planned growth was achieved by adopting mobile banking application.

In United Kingdom, the government has discussed on mobile banking implementation from a slightly different aspect for its microfinance program. Through Technology Program at Consultative Group to Assist the Poor (CGAP), the role of mobile banking in streamlining loan repayment system can be seen from the delivery of microfinance services outside conventional bank branches using mobile phones and non-bank retail agents. This way, implementation of mobile banking allows banks to better serve their existing customers and at the same time able to reach new customers (Kumar, McKay, & Rotman, 2010).

For developing countries, implementation of mobile banking within microfinance and poor communities was often referred to Globe Telecom's

GCash in the Philippines, Safaricom's M-PESA in Kenya, Eko in India by previous studies. Globe Telecom's GCash (Philippines) and Safaricom's M-PESA (Kenya) was introduced to provide financial services to poor communities. Loan repayment system is streamlined from mobile banking transactions as direct electronic transfer of money from individuals. This transfer can be executed from a mobile phone number to another individual or entity. Cash deposits and withdrawals are made at corner shops which sell prepaid mobile phone credits. Transactions were conducted via SIM Toolkit, which acts as a menu-driven service by selecting options that appear on the mobile phone screen, as they are organized as hierarchical menu options. Confirmation of transactions was received via Short Messaging Services (SMS) (Medhi, Ratan, & Toyama, 2009). Eko on the other hand, allows users to make cash deposits and withdrawals from an agent's premise. This agent is occasionally a small enterprise (talk time vendors and pharmacists) which runs multiple businesses at a single location. Transactions were generated through single-session, for which Unstructured Supplementary Service Data (USSD) short-code is entered as a specific syntax for input. Confirmations of transactions are also obtained from the SMS (Medhi, Ratan, & Toyama, 2009).

## **METHODOLOGY**

Looking from previous literature, it can be concluded that adoption of banking technologies, such as mobile banking, needs to be collaborated with regular flow of funds, especially for micro lending. As such, this adoption should also be backed up with proper accounting information system to assist MFI management team in making decisions for the institutions and the benefit of its recipients, especially with regards to its loan repayment system. Considering the unique feature of MFIs and microfinance product, it becomes a need for these institutions to be able to design an accounting information system that suits the nature of this industry and as well as its revolving technological advances. This is in line with Contingency Theory, which suggested that an accounting information system should be designed in a flexible manner to consider the environment and organisational structure confronting an organization (Gordon & Miller, 1976).

Hence, with an intention to understand current practice of loan repayment system with implementation of mobile banking in MFIs, the current study was conducted in an inductive manner. Qualitative research techniques that do not involve any hypothesis testing were believed to be more suitable in investigating the central research question of how implementation of mobile banking is able to streamline loan repayment system in MFIs. According to Weber (2012), qualitative approach allows researchers to ask 'how' and 'why' research questions on the fundamentals of their research. Answers obtained from these research questions are able to explain present circumstances and contribute to the body of knowledge in the area of ICT and microfinance. From this, findings will posit new theories and provide practical advice for various players in the microfinance industry. This is in line with suggestions made by Masrek and Razali (2013), who argued that qualitative approach can obtain richer and in-depth comprehension on mobile banking utilisation among users. A single case study is subsequently chosen as the research method for the current study.

According to Yin (2003), a single case study is a case study which straightforward, more constructive in nature and unique. This is where the identity of the case study is recognized from an onset of inquiry. This view was supported by Elaluf-calderwood, Kietzmann, and Saccol (2005), as this approach helps with attempts to comprehend the world as it is, by creating inter subjective meanings in the social process. It is an approach which tries to understand participants' social condition, whereby researcher should not be bias by imposing previous experience onto the situation.

Amanah Ikhtiar Malaysia (AIM) was selected as the case study, making the MFI the main focal point. AIM it is the only full-fledged MFI which had made a progressive move by initiating mobile banking application for recipients' loan repayment in selected branches using Transact-at-Palm (TAP) Mobile Banking-i. With this implementation, AIM has collaborated with Bank Islam Malaysia Berhad (BIMB) to launch its own mobile banking's platform M-Ringgit. AIM's M-Ringgit is in line with Bank Negara Malaysia's intention of promoting cashless and paperless transactions between AIM and its recipients (BNM, n.d.). The mechanism used by AIM is a very functional design, however there is limited knowledge about it (Kumar, 2012). This made the institution highly relevant as the focus of study, which requires extensive exploration and comprehension of the case

in its totality. Research objective can be achieved using single case study research as AIM is the most appropriate model to obtain insights regarding mobile banking utilisation within the microfinance industry.

There are two stages involved in conducting the current study. The first stage was a preliminary inquiry. Data was obtained from interviews which had been carried out face-to-face and via telephone interviews. For that purpose, the researcher was consistently in contact with staff members who are responsible for one of AIM centres in Kuala Kubu Bharu, as well as another centre in Kuala Selangor. In comparison, the centre in Kuala Kubu Bharu is a centre which does not using mobile banking, while the centre in Kuala Selangor is using mobile banking to streamline its loan repayment system. Other than interviews, text messaging via Whatsapp was also utilised in obtaining information. Interviews were carried out with AIM's Research and Development executives who are directly in charge for M-Ringggit. The reason of these initial interviews being conducted was for the researcher to obtain better understanding on the current practice of AIM's loan repayment system with M-Ringggit. The second stage of this study was more extensive, representing a major part of this study. This stage was conducted to better understand the situation and issues arising from AIM's M-Ringggit utilisation, if any. Inputs obtained from preliminary inquiry helped the researcher to understand the current practices of M-Ringggit in streamlining AIM's loan repayment system.

## **RESULTS AND DISCUSSION**

From interview sessions with informants, it was found that AIM has structured its accounting systems to suit the microfinance environment. This involves the nature of product and its recipients. The adaptation of mobile banking into the microfinance environment with respect to its loan repayment system was as explained in Contingency Theory (Gordon & Miller, 1976). Sulaiman (2003) supported this view by stressing that accounting information system is a product from its adapting environment, which includes all its income and expenditure usages. The nature of staff expenditure for AIM's head office, branches, and regional was explained by the account manager as follows:

*“All expenses incurred by Head office and regional offices are paid by Head office. Regional offices also pay expenses on their own but only involving the small amount of expenses. Actually, salary, hiring of vehicles and rent will be paid by Head office. Regional office pays small amount of payment of expenses”.*

The statement above indicates that Payroll Department does not fall under the Accounts Department. Instead, Human Resource Department maintains the institution’s payroll systems. The following explanation made by the account manager supports this:

*“Human resource department is not under accounting...Ok ... if for the salary it is like this. It will be updated automatically once keyed into the systems, like payroll of staff. But for staff payroll we use another system which the human resource department manages. It has its own systems. It will key in the data regarding payroll obtained from the human resource department to the UBS systems using the human resource department’s documents”.*

Provision of training among staffs in Accounts Department, specifically those who work directly with M-Ringgiti, becomes a necessity. This is because a good understanding on AIM’s Accounts Department workflow to catering for loan repayment systems is highly needed by staff of Accounts Department. However, training was yet to be provided by AIM to its accounting staff. From a telephone interview with an assistant accounts officer, the following evidence was obtained:

*“When I started working here, I was taught by the senior staff on how to handle the accounts. No proper training actually was given to the new staff”.*

The assistant accounts officer also added that:

*“I just do what I was been instructed to do. The rationale of doing it, I myself am not so sure”.*

In seeing the above scenario, the accounts manager was also asked on training of AIM’s accounts department staff. As admitted by the account manager:

*“Yes. We are trying to encourage the usage of M-Ringgit. With that in the near future, we will give training to the regional managers and assistants, branch manager and assistant, and also the accounting staff on the aspect M-Ringgit especially in its relation to accounting”.*

On the operational side of accounts department, the head office of AIM uses an accounting software called UBS. For purposes of standardisation between the head office and its branch offices, all branch offices also adapt the usage of UBS in maintaining their accounts. UBS is a standalone, computerised accounting system. As explained by the account’s manager of reporting section:

*“All the regional offices are using UBS standalone. All has been standardised meaning one region using one UBS. There is also UBS in the Head office for the purpose of making payment”.*

However, there are also several branches that are not using UBS accounting software. The following is a statement made by the regional assistant accounts officer:

*“UBS accounting software is only available at the regional offices. Not in the branch offices”.*

Management of recipient accounts is very basic, yet it is one of the most important elements in AIM’s accounting information system. As such, the Accounts Department needs to ensure that recipient accounts are properly maintained. Specifically, the task of updating individual recipient accounts is placed on branch offices. Branch offices are responsible to keep track of all repayments made by individual recipient from centres that are registered under them. This is how M-Ringgit streamlines AIM’s accounting information system. The following was elaborated by an assistant accounts officer:

*“The branch offices will update the recipient accounts and prepare the reports for all the centres under them”.*

After the introduction of M-Ringgit, AIM started to offer two method of loan repayment to selected branches and centres. One method was using M-Ringgit, the other was via direct bank deposit to AIM's bank account, which is also under the responsibility of branch officers. Cash payment was no longer accepted in the selected centres to investigate its feasibility to be further implemented nationwide. The ability of M-Ringgit in streamlining AIM's loan repayment system by synchronising front-end functionalities and back-end integration hence enhances the assessment of this institution's financial and social performances.

Upon completion of reports at branch offices, these reports will be handed over to regional offices to be updated using UBS accounting software. This was evidenced by the assistant accounts officer:

*“The branch offices will send the updated reports of the recipient accounts to the regional offices. The regional offices will update recipient accounts in the UBS accounting software in the regional offices”.*

Loan disbursement and repayment to AIM recipients are done through regional offices throughout Malaysia. Thus, it becomes a responsibility of regional offices to ensure good loan repayment performance in all branches that are under their governance. Regional offices must hence ensure that recipients under their region are able to carry out their obligations in making repayments for their loan. This is how AIM delegates tasks as a financial service provider to help manage and better understand its financial performance with proper accounting information system. This was explained as follows by the account's manager of reporting section:

*“The regional office will disburse loans to recipients based on their loan application. The Head office will not interfere in any of the Regional office affairs. It is the responsibility of the regional office to ensure the loan repayment and also to decide on the potential recipients”.*



## M-Ringgit's Impact on Loan Repayment System

The impact of M-Ringgit on loan repayment system is identified by observing the process for loan repayment made by recipients. It was found that loan repayments are made either in groups or individually through M-Ringgit, which are credited directly to AIM's BIMB account. This is how streamlining takes place. This can be explained by referring to Contingency Theory (Gordon & Miller, 1976) with the adaptation of microfinance environment into AIM's accounting information system. All loan repayment transactions made via M-Ringgit will be displayed in bank statements issued by BIMB. With these statements, M-Ringgit can update and facilitate AIM's loan repayment system. The following statement by accounts manager of reporting section supports this:

*“Once recipients paid through M-Ringgit, the payment will be stated in the M-Ringgit bank statement. All the payments are made either by the centre leader, or SR, or individually”.*

The above excerpt shows the streamlining process made with the usage of M-Ringgit. Front-end and back-end application of Contingency Theory was indicated through the transaction processing made by BIMB for the weekly loan repayments. As shown in Figure 1, the numbers 1, 2, and 3 depicts the registration process of a recipient with BIMB's TAP Mobile Banking-i. Once the recipient has registered into the system, as depicted by number 1, the back-end process occurs where AIM's Accounts Department would make an update on the recipient's account. This is performed by cross-checking the recipient's referral number, mobile phone number, and bank account number with BIMB. This is as portrayed in process numbers 2 and 3.

After the registration, recipient will be able to execute their loan repayment through M-Ringggit. Recipient interacts with the front-end by performing M-Ringggit transactions. Meanwhile, weekly loan repayment involves processes 4, 5, and 6 in Figure 1. A successful M-Ringggit transaction is confirmed to recipients via SMS. As indicated in Figure 1, process number 4, recipients will receive an SMS on completed transaction, as indicated in process number 5. AIM’s Accounts Department would then make an update on loan repayment by cross-checking the transaction with recipient database, collection sheet, and payment report. The overall workflow of M-Ringggit process and its association with AIM’s Accounts Department is described in Figure 1. Application of m-commerce (Laudon et al., 2009; Turban et al., 2010) and Contingency Theory (Gordon & Miller, 1976) in describing M-Ringggit process and its integration with AIM’s loan repayment system is shown in the same figure.

Figure 1 portrays M-Ringggit process involved in streamlining AIM’s loan repayment system. After loan repayment through M-Ringggit has been executed, updating process will be done via UBS accounting systems at regional offices. In order to ensure the correctness of financial recording, bank reconciliation is executed by regional offices, as discussed in the next section.

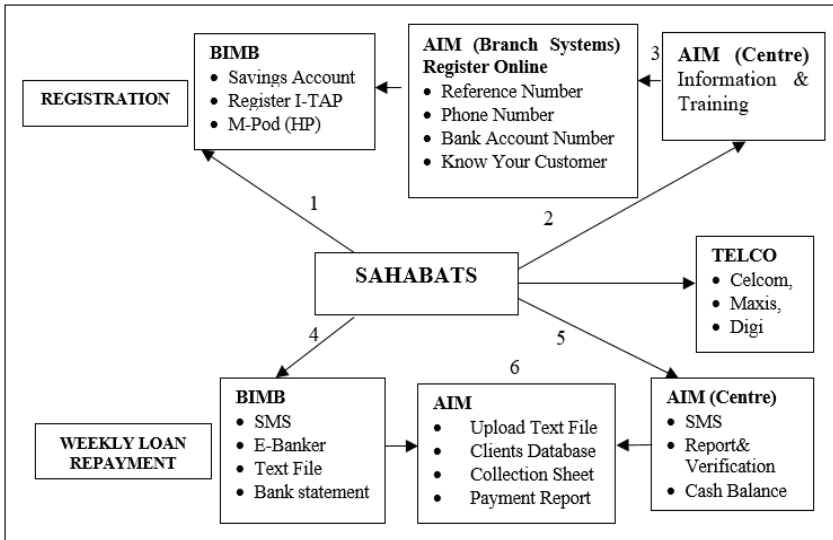


Figure1: M-Ringggit Process

## Bank Reconciliation

For AIM, every regional office throughout Malaysia has its own BIMB account. This is to exercise control on loan repayment made by recipients. The following was evidenced by assistant accounts officer:

*“Every region has its own BIMB account. Like AIM, it has 12 regions throughout Malaysia. As such, there are 12 BIMB accounts meant for one account for each region”.*

Bank reconciliation is a crucial part of AIM’s loan repayment system. As such, an analysis was conducted based on questions which were asked during interview sessions, specifically on bank reconciliation. As practiced by AIM, bank reconciliation is a methodology in order to ensure that recipient accounts which are maintained by branch offices are updated regularly. This is how AIM evaluates its financial and social performances by producing social responsibility disclosure. As regional offices obtain monthly bank statements, bank reconciliations conducted by regional offices will provide control for cross-checking on the correctness of the recipients’ individual accounts as updated by branch offices. This was explained as follows by accounts manager of reporting section:

*“The regional offices are doing the bank reconciliation for the branches under them. We just want to see the inflow of fund”.*

Further questions were asked on how the head office is able to confirm that figures obtained from UBS reports received from branches and regions are accurate. This is to cater for the righteousness of accounts manager in preparing accounts. In answering this question, the following evidence was obtained from accounts manager of AIM reporting section:

*“Actually, when recipients make repayment, the first data comes from the branch. Recipients will have a weekly centre meeting and that is how we know how much recipients have paid through M-Ringgiti. The payment will be matched with the loan repayment schedule. Second is with regards to data obtained from bank statements. So, every month for each transaction a recipient made, it would be entered in the bank statement. From there, we*

*know. So, we just know the money paid by recipient from these two sources combined and we matched. That is how we check”.*

He also added the following:

*“We will compare the bank statement with resources from other documents from the branches. Branches provide us a kind of form, if I am not mistaken a ‘BT Form’ in stating any differences. But usually the figure is tallies”.*

Loan repayments made via M-Ringgit has to be updated manually in UBS standalone accounting systems at every regional office. This was explained as follows by the account’s manager:

*“At AIM, we have our stand-alone accounting systems using this UBS standalone. The M-Ringgit transactions are not automatic updated into the systems. Manually key in and there is no difference with what we use for conventional which is manually key in the systems based on usual documents. Meaning still update and still on manual basis”.*

Consolidation of all regional accounts will be done by accounts manager (reporting section) at the head office after performing bank reconciliation at regional offices. The following section discusses the consolidation of regional accounts by the head office.

### **Consolidation of Regional Accounts by Head Office**

Consolidation performed by accounts manager on monthly basis is an important factor in enquiring the performance of AIM as a whole. It will enable AIM to examine its financial and social performances. With that respect, all regional offices will send their accounting data to the head office for the purpose of reconciliation and consolidation. This is as mentioned by accounts manager of the reporting section:

*“Data is sent to the Head office and we consolidate”.*

This is required as accounts manager needs to review the performances of all branches under regional offices, as the accounts are prepared by regional offices. As explained by the account's manager:

*"I am the reviewer of the recipients' accounts as a whole. The accounts are from the regional office.... We have regional offices that prepare for the account".*

Consolidated financial reporting enables AIM to review its financial performance, as it prescribes the performance of AIM's loan repayment system from the usage of M-Ringgit. Reports prepared by regional offices, which are based on the update from recipient accounts by branch offices, are also able to inform the head office on the total number of AIM's recipients, as well as their individual account balances in order to examine the institution's social performance.

## **CONCLUSION**

AIM is a forward-looking MFI that is always supportive towards adoption of cutting-edge technologies in increasing its outreach to the poor and at the same time in improving its operational and financial sustainability. Therefore, for AIM to overcome constraints regarding recipients' accessibility to its microfinance services, mobile banking pilot initiative was introduced. However, the application covered only 33 branches of AIM. Thus, it was not possible for the researcher to incorporate the results of M-Ringgit usage throughout all branches of AIM.

This study is concerned with an understanding of mobile banking usage in streamlining loan repayment system of MFIs. It was discovered that weekly meetings in Kuala Selangor took a shorter period of time than in Kuala Kubu Bharu. Shorter meeting time was mainly due to loan repayments being made through M-Ringgit, which means that no cash has to be counted at the meeting. This indicates that the usage of mobile banking can streamline loan repayment system and increases AIM's productivity by having shorter meeting times.

From findings of the study, it was indicated that mobile banking has generally been great in facilitating AIM in its move towards promoting cashless and paperless transactions among its microfinance recipients. This was achieved by the creation of a platform to simplify loan management system for recipients, making the system more effective and systematic. This simplification has been achievable due to enhancements made on data processing within the institution. AIM had used ICT tools to upgrade its daily operation system, affecting how weekly loan repayments are made by recipients. Implementation of mobile banking helped to speed up the process of updating data and manage recipients' bank accounts upon repayment. As mobile banking is a practical and reliable payment ecosystem, AIM had been able to reduce its operating cost, as well as increase its business opportunities.

This study has some practical contributions which sheds lights on the critical role of accounting for applying new technology, which could also be relevant for other organisations in Islamic financial sectors. Findings presented in this case study may be relevant to organisations intending to use mobile banking in streamlining their loan repayment system. Therefore, this study has highlighted the role of accounting information system in MFIs, for which practitioners can then internalise whether lessons that they learn from this case study can help them to solve similar issues within the context of their organisation.

A well-developed supportive infrastructure (The Louis Berger Group Inc., 2011) is one of the main factors to successful implementations of mobile banking. Issue such as interrupted telephone line is one of the constraints found in mobile banking usage by AIM. Risk exposure due to distance factor between recipients' residency and BIMB branches was discovered to be another constraint on nationwide usage of M-Ringggit. As a safety measure, AIM encourages the usage of M-Ringggit among recipients who live near BIMB branches; particularly within 5 km radius from their home. AIM has also conducted researches on distance factor involved in AIM regional offices in Sabah and Sarawak, namely Lahad Datu, Sandakan, Tawau, Bintulu, and Kota Kinabalu to study the feasibility of expanding the use of M-Ringggit.

As an effort to overcome these obstacles, AIM officers are encouraged to play more proactive role in motivating recipients to use M-Ringgit for loan repayment. High usage of M-Ringgit in the East Coast was found to be due to high motivational factors made by AIM officers, which have impacted these recipients.

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