



ASHESI UNIVERSITY COLLEGE

**EXPLORING THE USE OF MOBILE TECHNOLOGY IN MICROFINANCE
IN GHANA.**

ELIKPLIM DOE-BANSAH

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IN GHANA.**

By

ELIKPLIM DOE-BANSAH

Dissertation submitted to the Department of Business Administration, in partial fulfilment of the requirements for the award of Bachelor of Science degree in Management Information System.

2014

Declaration

I hereby declare that this dissertation is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

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Candidate's Name: Doe-Bansah Elikplim

Date: 16th April 2014

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by Ashesi University College.

Supervisor's Signature:

Supervisor's Name: Mr Anthony Essel-Anderson

Date:

Abstract

Microfinance when implemented well in developing countries for example could help very poor households to meet basic needs and protect against risks; thus microfinance is associated with improvements in household economic welfare (Asiama and Osei, 2007). Microfinance institutions (MFIs), the providers of microfinance services are faced with the problem of how to ensure the sustainability and profitability of microfinance schemes. This research seeks to investigate the factors that influence the adoption of mobile technology by MFIs, the various uses for mobile technology in microfinance and its ability to solve the problems of MFIs. This research aims at generating a set of preliminary results that will contribute to advancing research on the impact of mobile technology on profitability of microfinance in Ghana.

The research design was based on a qualitative survey approach. The institutions which took part in the survey constituted micro-financial institutions.

Upon analysis of data gathered, results attained showed that MFIs choice of mobile technology is based on the cost of acquiring mobile technology, the benefits that will be attained from the use of mobile technology and the influence of the industry within which they operate.

It is recommended that MFIs should be careful when making decisions involving the spending of large sums of money in mobile technology. This is because investment in technology is an expensive undertaking which should not be taken lightly.

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Chapter 1 Introduction

1.1 Background to Study

2006 Noble price winner Professor Muhammed Yunus is well known for his "efforts to create economic and social development from below" (The Nobel Price 2006, 2013). A research project he started in 1976 in India to examine the possibility of designing a credit delivery system to provide banking services targeted at the rural poor. The research became necessary due to the 1974 famine in Bangladesh which led to the death of about 37,000 people (Zaki, 2013). Professor Yunus in his experiment made out small loans to poor families to break the cycle of poverty and due to the success of his experiment in 1983, the Grameen Bank was founded (A Short History of the Grameen Bank, 2013).

The devastating famine which occurred in Bangladesh in 1974 (Zaki, 2013) was of great concern to the international community. As such an agreement was reached at the World Food Conference organized by the international community to establish an International Fund for Agricultural Development (IFAD). The IFAD's was mandated "to combat hunger and rural poverty in developing countries, especially low income, food-deficit countries, and to improve the livelihood of rural poor people on a sustainable basis" (Achieving Millennium Development Goals, 2003). Since its inception, the International Fund for Agricultural Development (IFAD) has contributed immensely to rural poor development including improving access to productive resources (especially land and water), sustainable agricultural production (including fisheries and livestock), water management and irrigation (mainly small-scale) etc.

However, aside the efforts of the IFAD, statistics on world poverty shows that about 1.4 billion people in the world currently still live on less than \$1.25 a day (Poverty, n.d). In view of this, in 2000, the United Nations presented and adopted the Millennium Development Goals (MDG) with the primary purpose of reducing the proportion of people living on less than \$1.25 a day by 2015 (Millennium Development Goals, 2014).

To achieve the Millennium Development Goals, the United Nations proposed a financial inclusion strategy which will insure that the poor in society have easy access to financial services. The UN's support for Microfinance is because of "the ties between financial inclusion and progress on the Millennium Development Goals. In other words, financial inclusion is not an end in itself, but rather a means to an end. The end goal, of course is better lives for people throughout the developing world, as embodied by the MDG targets" (Morrison, 2011).

"While the Millennium Development Goals do not formally set targets for financial sector access, low-income countries need microfinance to achieve the MDGs. Microfinance underpins the achievement of many MDGs and plays a key role in many MDG strategies" (Microfinance and Millennium Development Goals, 2005). Thus, microfinance when implemented well in developing countries for example could help very poor households to meet basic needs and protect against risks; thus, microfinance is associated with improvements in household economic welfare (Asiama and Osei, 2007).

1.2 What is microfinance?

Microfinance is described by Robinson (2001) as "small-scale financial services (primary credit and savings) provided to people who farm, fish or herd; operate small enterprises or microenterprises where goods are

produced, recycled, repaired, or sold; who provide services; who work for wages or commission; who gain income from renting out small amounts of land, vehicle, draft animals, or machinery and tools; and to other individuals and groups at the local level of developing countries, both rural and urban". Thus, microfinance provides low income earners in the society working capital to establish small businesses that generate revenue for which the proceeds from these businesses can be used to improve the living conditions of its beneficiaries.

Microfinance "encompasses the provision of financial services and the management of small amounts of money through a range of products and a system of intermediary functions that are targeted at low income clients. It includes loans, savings, insurance, transfer services and other financial products and services" (Asiama and Osei, 2007).

The concept of microfinance is not new in Ghana. Evidence shows that in 1955 Canadian Catholic Missionaries started the first credit union, which was later followed by the introduction of the Susu scheme from Nigeria (Asiama and Osei, 2007). susu in the Akan Language which means "small small" is an ancient form of banking where small amounts of money are given to an individual called the susu collector by other individuals (called clients) who are mainly made up of petty traders, artisans, farmers, and in some cases salaried workers for safe keeping over a period of time (usually for a period of one month). The savings gathered by the Susu collector are returned to the clients less a day's savings as consideration for services rendered after the client has contributed for the full one month (Zenere, 2013).

1.3 Importance of the Susu Scheme

Susu as an informal form of microfinance has many benefits that it offers clients. Through the use of the susu scheme, clients are able to save up money for future needs which otherwise would have been spent on presently pressing matters. Clients to the scheme are made up of persons who in most cases do not have access to any formal means of acquiring credit since they cannot meet the demands of the commercial banks. The susu scheme offers clients the opportunity to save up money to cater for their needs in the future (Zenere, 2013).

Secondly, clients who are able to access credit through the susu scheme have the added advantage of being charged very little interest or no interest at all; as the credit allocated to clients is gotten from funds that were mobilized from other clients of the scheme (Zenere, 2013).

Finally, the clients to the scheme do not have to spend money taking transport to the bank and spend time waiting in a queue just to deposit or withdraw money. Instead, the susu collector meets the contributor or his clients at a convenient place such as at his/her work place or at home. This practice enables the susu collector to develop personal relationships with his clients (Basu, 2004).

Microfinance has gone through four stages. The first phase saw the provision of subsidized funds by governments all over the world in the 1950's (General Background on Microfinance Trends). During this era it was believed that the main cause to poverty was because the poor in society did not have access to capital. NGO's provided micro-credits from the 1960's to the 1970's during the second phase of microfinance (General Background on Microfinance Trends). During this era it was still not deemed

important to consider the sustainability and financial self-sufficiency of MFIs. The third phase began in the 1990's. During this time microfinance institutions were being formalized (General Background on Microfinance Trends). With the fourth phase microfinance institutions were brought in to the mainstream of the financial sector (General Background on Microfinance Trends).

1.4 Structure of Microfinance Sector in Ghana

The structure and key microfinance stakeholders in Ghana consist of the following (Asiama and Osei, 2007):

Microfinance Institutions, including

- The Rural and Community Banks,
- Savings and Loans Companies
- Financial NGOs
- Primary Societies of CUA
- Susu Collectors Association of GCSCA
- Development and commercial banks with microfinance programs and linkages
- Micro-insurance and micro-leasing services.

Microfinance Apex Bodies, namely:

- Association of Rural Banks (ARB)
- ARB Apex Bank
- Association of Financial NGOs (ASSFIN)
- Ghana Cooperative Credit Unions Association (CUA)
- Ghana Cooperative Susu Collectors Association (GCSCA)

End Users

The end users are the economically active poor who are clients of microfinance products and services.

Technical Service Providers

Technical Service Providers are business development service providers to MFIs and their clients.

Supporting Institutions

- Microfinance and Small Loans Centre (MASLOC);
- The Ghana Microfinance Institutions Network (GHAMFIN);
- Development partners and international non-governmental organisations
- Universities, training and research institutions.

Government Institutions

- Ministry of Finance and Economic Planning
- Ministries, Departments, Agencies (MDAs) and Metropolitan, municipal and District Assemblies (MMDAs)
- Bank of Ghana.

1.5 Challenges Associated with Microfinance

The roles of the stakeholders of microfinance sector sometimes overlap as the industry does not have clearly defined areas of operations. Also, the current system of credit delivery is not well structured and diversified to meet the various needs of the market (Asiama and Osei, 2007).

The microfinance sector does not have any properly developed means of exchanging information or data. This makes the tracking of the

progress of the microfinance sector in Ghana very difficult as there is no central information management sector (Asiama and Osei, 2007).

1.6 Criticisms of Microfinance

The debate on the effectiveness of microfinance has been on-going for some time now. Research conducted by David Hulme and Paul Mosley in 1999 indicates that "poor households do not benefit from microfinance; it is only non-poor borrowers (with incomes above poverty lines) who can do well with microfinance and enjoy sizable positive impacts. More troubling is the finding that a vast majority of those with starting incomes below the poverty line actually ended up with less incremental income after getting micro-loans, as compared to a control group which did not get such loans" (Wagner, 2002). What this means is that making credit accessible to the poor is only one step to alleviating poverty. There are other factors that needs to be address before microfinance can become more productive.

Among these factors is the need for the recipients of the loans to acquire some entrepreneurial skills. The loans given to the poor through microfinance is intended to be used in establishing small businesses so the businesses can generate productive capital (Wagner, 2002). This way, the borrower will be able to pay off his/her loan and also have money left to cater for other household expenses. As such, if borrowers of microfinance schemes are not equipped with the technical know-how or basic entrepreneurial skills, they may not be able to sustain the businesses that they set up.

To ensure that microfinance programs become effective, there is a need to combine microfinance with other developmental tools so that poverty can be tackled in a more effective manner. In fact some research

has concluded that combining microfinance with other developmental tools increases effectiveness. This means that microfinance cannot and should not be seen as the only cure for stopping poverty (Wagner, 2002).

For example, Sam Daley-Harris, Director of the Microcredit Summit Campaign, writes, "Microfinance is not the solution to global poverty, but neither is health, or education, or economic growth. There is no one single solution to global poverty. The solution must include a broad array of empowering interventions and microfinance, when targeted to the very poor and effectively run, is one powerful tool" (Ydhaile, 2013). In the words of Professor Yunus, "Micro-credit is not a miracle cure that can eliminate poverty in one fell swoop. But it can end poverty for many and reduce its severity for others. Combined with other innovative programs that unleash people's potential, micro-credit is an essential tool in our search for a poverty-free world" (Prasadarao, 2009). Thus there is a general agreement that other developmental factors need to be combined with microfinance in order for the scheme to be effective. However, much attention has been given to the supply of microfinance more than the demand for microfinance (Wagner, 2002).

A research conducted in Bangladesh found out that microfinance has no positive impact on gender. This was because even though it was reported by the Grameen Bank that most of its borrowers were made up of women. The research found out that most of the women who took the loans collected the loan on behalf of their husband's (Microcredit and the Grameen Bank, 2014).

Secondly, the interest rates paid by the poor in society are among the highest. This is attributed to the fact that the administrative charges for

small amounts are relatively higher than those for large loans (Microcredit and the Grameen Bank, 2014).

Also, due to the high interest rates some poor families may find themselves in a death tap as they may borrow money from one microfinance institution in order to meet their obligations in another organization (Microcredit and the Grameen Bank, 2014).

1.7 Benefits of Microfinance

Microfinance allows the poor to save up money during times of plenty and to withdraw or borrow money during times of hardship. This helps the poor in the maintenance of their health as there will be a consistent level of food available for consumption. It will also mean that the poor would not have to sell off valuable properties when they are in need (Davis, n.d).

Also, it has been found out that microfinance can lead to the creation of certain non-economic benefits such as the empowerment of women. Research has shown that when women are given small loans for businesses and they become income earners they gain some power in the home and are able to make some important decisions (Davis, n.d).

This is to say that the positive role of microfinance should not be dismissed. "If this consumption smoothing means parents can send their children to school, or buy essential medications, and maintain nutritional in-takes of their children then microfinance is likely to have positive long-term impacts on productivity" (Wagner, 2003).

1.8 Delivery Models of Microfinance

There are several delivery models of microfinance being implemented currently in different parts of the world. The six main delivery models are as follows:

1.8.1 The Grameen Bank Model

The Grameen Bank model is a model practiced by the Grameen Bank in Bangladesh. In this model participants are placed in groups of five and required to make mandatory group savings and insurance fund. Upon the completion of the stipulated amount over time, each member is given individuals loans for which the group is not held responsible for in case of a default (Microfinance Trends, Problems and Prospects).

1.8.2 Joint Liability Group Model

The joint liability group model places participants into groups ranging from 4-10. Each member's bank loan is avail against the group's mutual guarantee. Members sign a joint liability contract which makes them jointly responsible for any loan taken by any member of the group (Microfinance Trends, Problems and Prospects).

1.8.3 Individual Lending Model

A third model is the individual lending model. With this model, an individual can obtain a loan from the MFI without having to join a group. Since the individual does not belong to any group in this model, he may have to provide a collateral to guarantee for the loan (Microfinance Trends, Problems and Prospects).

1.8.4 Group Model

The fourth model is the group model where about 10-20 individuals form a group and the entire financial process is delegated to the group. Each member contributes a fixed amount of money to a common pool over a period of time. After working with the group for a period the group is linked with a financial institution for a loan (Microfinance Trends, Problems and Prospects).

1.8.5 The Village Banking Model

The fifth model is the village banking model. With this model persons who want to be economically active form a group consisting of 30-100 individuals. The group contributes to a common fund. The funding gained from this savings is managed by the group in giving out loans to other people in the village. The main source of finance for this group is through individual contributions and loans provided by sponsoring MFI's (Microfinance Trends, Problems and Prospects).

1.8.6 The Credit Unions and Cooperatives

The final model is the credit unions and cooperatives. "It is owned and governed by its members, who are at the same time the owners and the customers of their co-operative society. Co-operatives are often created by persons belonging to the same local or professional community or sharing a common interest. Co-operatives generally provide their members with a wide range of banking and financial services. Members participate in all the major decisions and democratically elect officers from among themselves to monitor the administration of the co-operative" (Microfinance Trends, Problems and Prospects).

1.9 Mobile Technology

"The GSM family of technologies has provided the world with mobile communications since 1991. In over twenty years of development, GSM has been continually enhanced to provide platforms that deliver an increasingly broad range of mobile services as demand grows" (GSMA, 2014).

Mobile technology refers to technology that is portable. Standard mobile phone, PDA, vehicles, laptops, tablets, smartphones devices which are carried around to perform a wide variety of "tasks" is known as mobile

technology (Daichendt, 2013). Whereas desktop computers are restricted to be used at fixed locations and cannot be carried around easily, advances in technology has solved this problem. Nowadays, mobile devices have functions that enable them to perform the same computations or tasks as the desktop computer. With the added benefits of mobile devices being mobile, portable, having a GPS navigation system, a web browser, an instant messaging system, a video gaming scheme and the ability to communicate to other devices through several media such as through radio wave, microwave, infra-red, GPS and Bluetooth to allow for the transfer of data via voice, text, video, 2-dimensional barcodes etc., there are numerous ways mobile technology could be used to improve the operations of MFIs.

Currently, the commonest mobile technological device that in Africa and for that matter in Ghana is the mobile phone. As about 6 billion of the world's population is reported to own and use mobile phones, it is no surprise that the African continent has seen an increase in the way mobile technology is used in fields of Medicine, Microfinance, Agriculture, Social Research and Education (Tsao, 2013).

A study conducted by CGAP found that technology was being used in microfinance. The research noticed three main purposes for which the use of technology was being applied which are M-commerce, E-commerce and branchless banking channels (Razzani, Rahman, Salwani and Morzehan, 2013). M-commerce "is the use of mobile devices to communicate, inform transact and entertain using text and data via a connection to public and private networks" (Abbot, n.d) while E-money refers to money that can be found only in computer systems and can be held (Electronic Money, 2014).

Finally, branchless banking is a “branch that delivers conventional bank branches by means of information communication technology” (Razzani, Rahman, Salwani and Morzehan, 2013).

Mobile phones have become a popular device for m-commerce. In Kenya Safaricom the country’s biggest telecommunication company has been able to use their “virtual money to repay loans to , or make deposits in microfinance institutions through their mobile wallet service called M-PESA” (Razzani, Rahman, Salwani and Morzehan, 2013) Pakistan has recently been identified as being the fastest growing branchless banking market in the world. Also client facing technology is important to ensure speedy delivery of customer service. This technology would allow clients to make loan payments through electronic or cashless payments systems such as mobile banking, internet based banking, automated teller machine, debit and credit cards (Razzani, Rahman, Salwani and Morzehan, 2013).

Since the operations of microfinance are not properly regulated in size or complexity, microfinance firms that want to adopt the use of technology must adopt technology that will suit the needs of the firm. MFIs must consider the volume of transactions that will be processed by the information system, methodology, the regulatory framework within which the firm is located, the infrastructure available and the readiness of the organization for change (Razzani, Rahman, Salwani and Morzehan, 2013).

1.10 Problem Statement

In order for microfinance institutions to effectively manage their business operations and provide good customer service to clients, microfinance institutions must adopt business practices that provide security for clients’ contributions, ensure that proper accounting records are

kept and enhance the monitoring of business activities. There are varying number of mobile technological solutions currently available to MFIs and in use by microfinance institutions in Ghana. Without fully understanding the factors that influence microfinance institutions decision to adopt mobile technology, and how these institutions use mobile technology to solve their problems, we might not be able to identify the best practice(s) that ensure the sustainability and profitability of microfinance.

1.11 Objectives of the Study

The objectives of this research are:

1. To identify the factor(s) that influence MFIs' use of mobile technology.
2. To identify the uses of mobile technology in microfinance in Ghana.
3. To identify the best mobile technological solution that ensures profitability and sustainability.

1.12 Research Question

This dissertation seeks to find answers to the following questions:

1. What are the factor(s) that influence MFIs' use of mobile technology?
2. What are the uses of mobile technology in microfinance?
3. What is the best mobile technological solution that ensure profitability and sustainability?

1.13 Literature Review

A considerable amount of research has been conducted in studying the factors that influence the diffusion of technology in education, medicines etc. but no research has been conducted on diffusion theory on microfinance. Also the literature reviewed shows that for any microfinance institution to be sustainable MFIs' must increase their total number of

clients through outreach programs. The general consensus is that, the sustainability of MFIs is dependent on MFI's ability to increase the number of clients being served. Research believes that sustainability can be obtained through outreach programs.

1.14 Methodology

The research design was based on a qualitative survey approach. The questionnaire which was used in this research consisted of opened and closed questions. Information collected was to understanding the factors that influence microfinance institutions adoption of mobile technology, and how and what mobile technology is being used for.

1.15 Scope of Study

The term microfinance is a broad area of research; as such this research focuses on exploring the use of mobile technology in microfinance in Ghana by interviewing firms engaged in microfinance within the Ga East Municipal District. Currently, the microfinance sector has seen significant improvement in regulation of its activities, the creating of several mobile technological solutions and the adoption of mobile technology. This research is therefore well suited within a good period when the industry is still evolving and new ways of doing business are being implemented.

1.16 Justification of the Study

This study will add to the body of knowledge on the subject of microfinance and the adoption of mobile technology by MFIs in Ghana. Currently, the market for microfinance is increasingly becoming a competitive one. As more microfinance institutions join the market each year, MFIs need to find innovative ways to maintain their existing clients while adding new ones, make profit and sustain their businesses. MFIs in

their quest to remain profitable have resulted to the use of mobile technology. However, no research has been conducted on microfinance and mobile phone utilization and which business practices gave the best results.

Through this research, MFIs would be able to understand the various mobile solutions available to them and how they are being applied to solve different problems and possibly ascertain which of these solutions ensure that MFIs do not spend too much money investing in a technology that will not ensure profitability and sustainability.

1.17 Outline of Thesis Report

Chapter One introduces the study. It includes background to the study, the meaning of microfinance, the structure of the microfinance sector, challenges, criticisms and benefits of microfinance, objectives, and scope of the research.

In identifying the types of mobile devices that are being used by microfinance institutions in Ghana, this research would like to understand the motivating factors or the factors that influences their choice of mobile technology to adopt. As such, Chapter Two reviews the relevant articles and materials that had been written behavioural patterns of individuals in the society and the various factors that may influence their decision to adopt a new innovation, mobile technology and its applications, and the challenges preventing mobile technology from being fully utilized in microfinance.

Chapter Three focuses on the types of data to be collected, questionnaire design, data collection and preparations. It also indicates how data will be collected in the field and the people who were interviewed.

Chapter Four focuses on analysing the data that has been collected from the field. Chapter Five shall attempt to suggest recommendations and

identify the best mobile technological solutions in use currently and what MFIs can do to ensure that they remain profitable and ultimately become self-sustaining.

Chapter 2 Literature Review

2.1 The Diffusion Theory and Instructional Technology

Dan Surry in 1997 presented a paper explaining the theory of diffusion. In this paper, Surry states that Rogers used diffusion theory as a means to explain the theory of instructional technology. Rogers described diffusion as “the process by which an innovation is adopted and gains acceptance by members of a certain community” (Surry, 1997). The theory explains the reasons behind or factors that contribute to the success or failure of a technological innovation whether good or bad.

He identifies four main factors that influence the diffusion of innovation. They are innovation, how information about innovation is communicated, time and the nature of the social system into which the innovation is being introduced (Orr, 2003).

He further identified five factors known as Knowledge, persuasion, decision, implementation, and confirmation as the contributing factor to a person’s decision to adopt an innovation or not. The above mentioned terms are defined by Rogers as follows (Clarke, 1999):

- Knowledge (exposure to its existence, and understanding of its functions);
- Persuasion (the forming of a favourable attitude to it);
- Decision (commitment to its adoption);
- Implementation (putting it to use); and
- Confirmation (reinforcement based on positive outcomes from it).

In diffusion theory Rogers found out that people who belong to the same social group or system turn to be influence by the actions of other members in the group (Orr, 2003). Hence, if an individual belongs to a

society where almost every member of the society uses a smartphone, then that individual in question is most likely to purchase a smartphone only if he does not already have one. Thus, Rogers states that apart from the influence that a social system may have on an individual, people will adopt innovation based on the decision of those who have already adopted the innovation in question. Hence, as in the example above the individual in question may also decide to purchase a smartphone because other people are using it.

He identifies that this decision is made through a cost – benefit analysis as such people have the tendency to use an innovation when they believe it will enhance their utility (Orr, 2003). Also, apart from the fact that the decisions of other people may influence one's decision to also adopt a particular innovation, people will also consider the cost involved in purchasing such innovation and then compare it against what he perceives to be the utility he will gain. If the utility that will be gotten from the innovation is deemed to be less compared to its cost the individual may decide not to adopt the innovation.

Rogers theorized that individuals who are susceptible to being innovative will readily adopt an innovation faster than other people who are not (Orr, 2003). The figure below shows a bell shaped "distribution of Individual Innovativeness and the percentage of potential adopters theorized to fall into each category. On one extreme of the distribution are the Innovators. Innovators are the risk takers and pioneers who adopt an innovation very early in the diffusion process. On the other extreme are the Laggards who resist adopting an innovation until rather late in the diffusion process, if ever" (Orr, 2003).

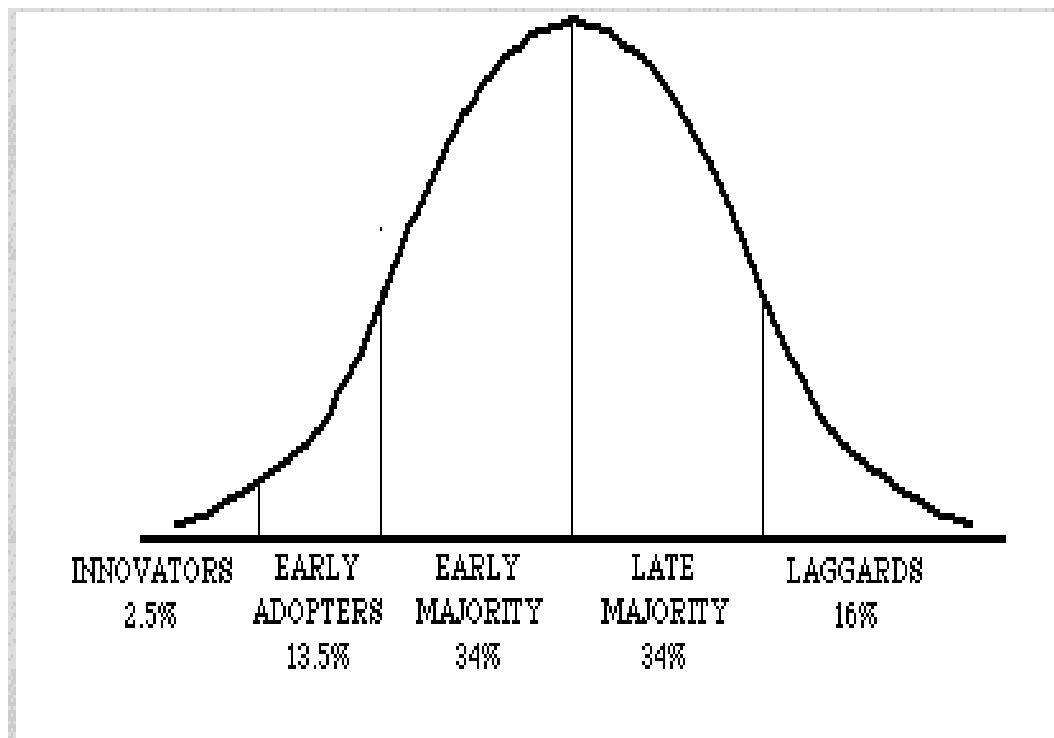


Figure 2.1

Early Adopters - These are people who represent the leaders in society thus opinion leaders. They enjoy leadership roles, and embrace change opportunities. "They are already aware of the need to change and so are very comfortable adopting new ideas. Strategies to appeal to this population include how-to manuals and information sheets on implementation. They do not need information to convince them to change" (Diffusion of Innovative Theory, 2013).

Early Majority - These people are rarely leaders, but they do adopt new ideas before the average person. That said, they typically need to see evidence that the innovation works before they are willing to adopt it. Strategies to appeal to this population include success stories and evidence of the innovation's effectiveness (Diffusion of Innovative Theory, 2013).

Late Majority - These people are sceptical of change, and will only adopt an innovation after it has been tried by the majority. Strategies to appeal to this population include information on how many other people have tried the innovation and have adopted it successfully (Diffusion of Innovative Theory, 2013).

The Theory of Adoption

The theory of rate of adoption “suggests that the adoption of innovations is best represented by a s-curve on a graph. The theory holds that adoption of an innovation grows slowly and gradually in the beginning. It will then have a period of rapid growth that will taper off and become stable and eventually decline” (Yates, 2001). The figure below shows “the rate of adoption diffused over time in a pattern that is shaped like an “S-shape” curve. Rogers theorizes that an innovation goes through slow, gradual growth, relatively dramatic and rapid growth” (Surry, 1997).

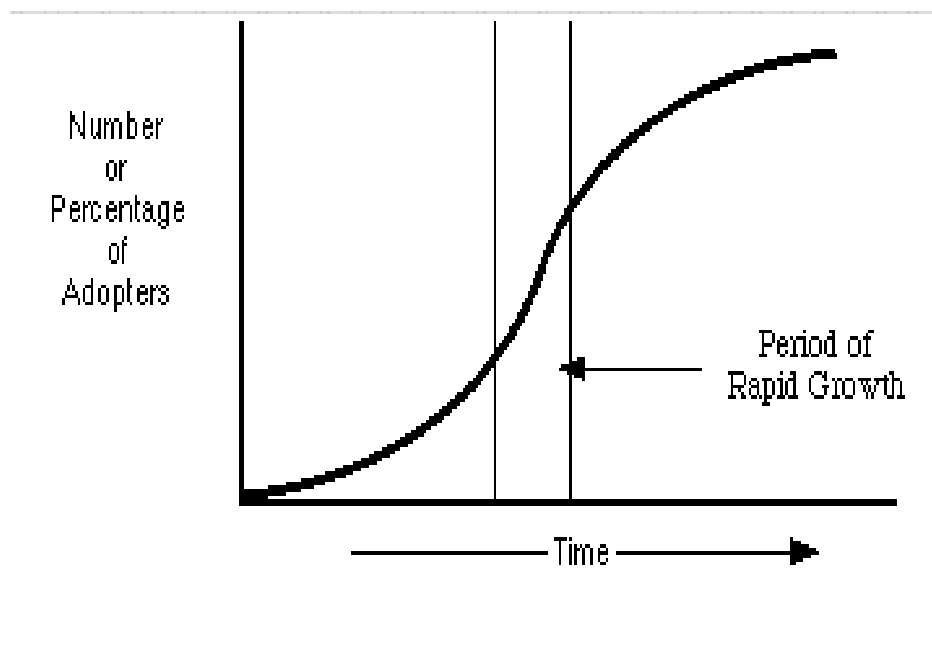


Figure 2.2

The Theoretical Standpoint

The standpoint theory is a “post modernistic approach on people’s perception. It states how the day to day experience alters or influences a person’s opinions. Generally standpoint arises when people recognises the value of power that creates different groups within the society” (The Standpoint Theory, 2010).

There are two main school of thought on the theoretical standpoint. The first is the deterministic philosopher who views “technology as an autonomous force beyond human control and see technology as the prime cause of social change” (Surry, 1997).

The second category of philosophers is the instrumentalists who view technology as a tool. They belief that just like any tool technology can be used for good or bad. Hence, they argue that technology is under the control of human (Surry, 1997).

2.2 Limitations of Diffusion of Innovation Theory

There are some limitations of Diffusion of Innovation Theory, which include the following (The Diffusion of Innovative Theory, 2013):

- Much of the evidence for this theory, including the adopter categories, did not originate in microfinance and it was not developed to explicitly apply to adoption of new behaviours or microfinance innovations.
- It does not foster a participatory approach to adoption of a microfinance program.
- It works better with adoption of behaviours rather than cessation or prevention of behaviours.

- It doesn't take into account an individual's resources or social support to adopt the new behaviour (or innovation).

2.3 Developer Based (Deterministic) Theory

The main aim of developer based theory is to increase diffusion by maximizing the efficiency, and elegance of an innovation. The developer of the superior technology is seen as the primary force for change. Determinist belief that a mere superior technology when introduced will overtake an inferior one" (Surry, 1997).

2.3 Limitations of Developer Based Theory

The primary limitation of instructional development and the "RDD paradigm upon which it is based, is their inherent deterministic bias. There is however, general agreement in the diffusion and adoption literature that technological superiority alone is not enough to guarantee the adoption of an innovation. In fact, some would argue whether technological superiority is even a necessary condition, at least at the beginning of the adoption process" (Slurry, 1997).

2.4 Adopter Based Theory

The adopter based theory focuses on the end user as the ultimate force for change and rejects the assumptions of developer based theorist that technology will be attractive to adopt (Slurry, 1997). So far the diffusion theory has been looking at the factors that influence the adoption of an innovation by an individual, this is based on the assumption that the technological innovation has already been introduced.

2.5 Social Constructivism

Another theory is social constructivism. Social constructivism “includes a conception of technological development as a contingent process, involving heterogeneous factors” (Cuoros, 2003). As such Brey’s research suggests that technology “be analysed as following a fixed, unidirectional path, and cannot be explained by reference to economic laws or some inner technological ‘logic’” (Cuoros, 2003). To explain a change in technology then relevant social groups, which are groups of actors that share a common conceptual framework and common interests must be seen to engage in strategies to win from the opposition and to shape technology according to their own plan (Cuoros, 2003).

2.6 The Social Construction of Technological Systems

The social construction of technology (SCOT) is a theory that seeks to study how the study of technology revolves around the idea of relevant social groups (The Social Construction of Technological Systems). Thus, SCOT tries to understand the links between social and technical processes, understand both as human (social) constructions, and technology shaped by:

1. Human engineers
2. Market forces
3. Consumer needs and demands
4. All individuals and groups who are also social products

SCOT also attempts to link the activity of individuals to wider social processes, power, and internal Structure of Technology (Keel, 2014). SCOT states that each social group brings separate interpretation to the artefact. The artefact has “interpretive flexibility”, which implies that different groups

can influence how the technology is developed. For example, in the case of the “high-wheeled bicycle, the tendency of men to think of the bicycle as a macho machine led to the use of larger wheels to increase speed, thus the meaning influences the technological design” (Keel, 2014).

However, the “interpretive flexibility of technology is not permanent, over time particular interpretations of the technology can come to dominate. This process of closure or stabilization of interpretive flexibility happens as particular development paths solve problems associated with the technology (or decide to ignore the problems), and certain meanings come to dominate” (The Social Construction of Technological Systems).

2.6 Microfinance and Mobile Banking, the Story So Far.

Exploring the various roles that MFIs can play in mobile banking and exploring the potential benefits MFIs and their customers expect to gain from pursuing mobile banking, Kabir, McKay and Rotman (2010) identified the potential for mobile phones to be used in reaching many more customers at low cost. However, even though mobile banking has all this benefits available to MFIs, they have not significantly played any role in mobile banking. Reasons being that mobile banking services include the deployment of money transfers, a service MFIs do not offer. While the mobile banking businesses focusses on transfers and payments, MFIs focuses on credit and savings.

In determining if mobile banking can help MFIs serve existing customers better, expand on market share and reduce cost for MFIs, Kabir in reference to Opportunity Banks’ project which focused on developing a mobile banking system from scratch to suit the environment of the microfinance industry, identified that developing a mobile banking system

from scratch was expensive and time consuming. Hence, MFIs that want to invest in a mobile banking system must be clear about how mobile banking addresses their core customer value proposition.

As such most countries do not have a well-developed mobile banking infrastructure in place. MFIs who focus on "reaching previously unbanked people with a network of retail agents and mobile phones is ideal. However, using cell phones as a distribution channel is not an all-or-nothing proposition, many banks are using phones to increase customer convenience, lower costs, and earn extra revenue. MFIs can do this as well" (Kabir, McKay and Rotman, 2010).

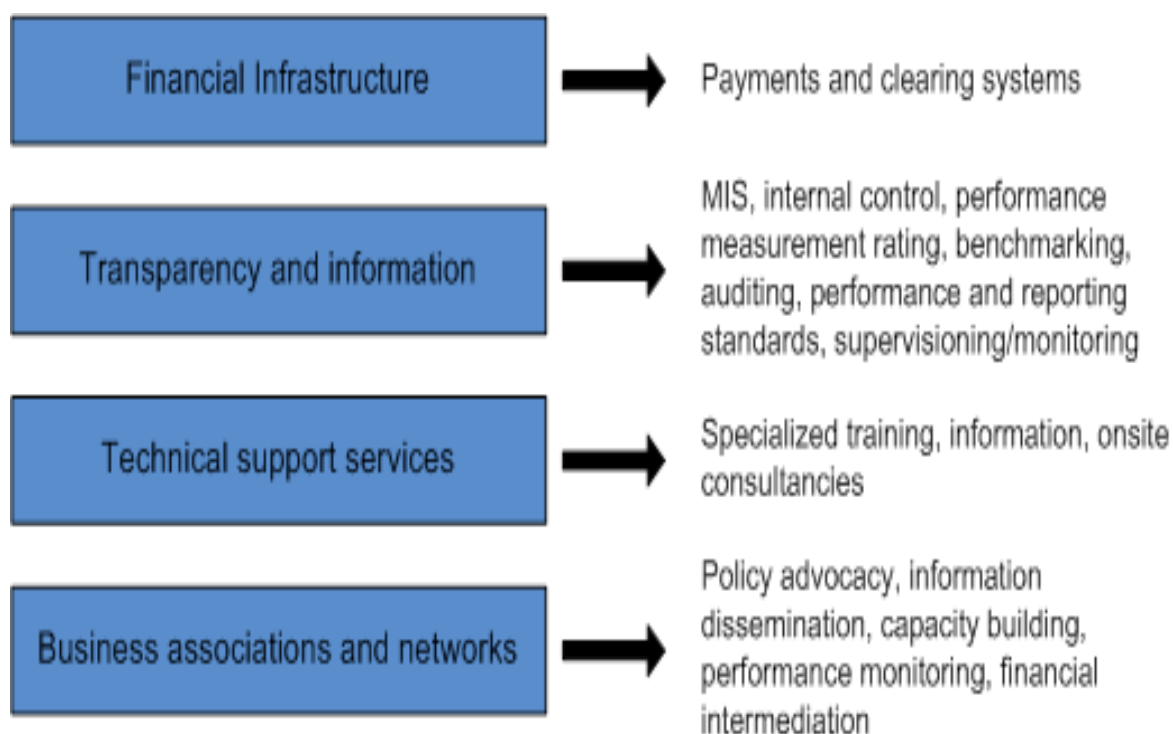
2.7 The Role and Impact of Information and Communication Technologies (ICT) in Microfinance

Anand Rai (2012) in India investigated the impact of microfinance, and the use of ICT in the financial services industry by discussing the role and impact of ICT on outreach and sustainability at the industry level.

In the research, Rai (2012) spoke of outreach and sustainability as two terms that needs to be given attention. She explains that to ensure the sustainability of any microfinance program, there is the need for microfinance institutions to widen their outreach through the addition of more clients to the program. She identified that these two words sustainability and outreach are synonymous as increasing client outreach provides economies of scale which makes the microfinance program more efficient and therefore more sustainable (Rai 2012). However, outreach programs which entail being able to reach people in very remote and far areas will result in more expenditure and subsequently the non-

sustainability of the program. She identifies this problem as the major and real problem that prevents microfinance institutions from being sustainable.

Rai (2012) used Brigit Helms' "meso level" model in investigating the impact of ICT on outreach and sustainability.



Brigit Helms "meso level" on financial infrastructure and services

Figure 2.1

Rai (2012) concluded that "ICT innovation in microfinance are being used or implemented in various programs around the world. However, their use is limited to big or medium size MFPs. Also, there is much to learn and more experimentation to take place.

Chapter 3 Methodology

3.1 Research Design

This section deals with the collection and analysis of data to determine the use of mobile technology in microfinance. Primary data collected ensured that all relevant information required for the study are gathered and utilized. This study is exploratory in nature and employed the use of survey method in the collection of data. Institutions that were included in this research consisted of firms engaged in microfinance activities. The questions that was used in the questionnaire consisted of qualitative and quantitative questions.

3.2 Target Population and Sampling Procedure

To fully understand the extent to which mobile technology is being used and what it's being used for in microfinance in Ghana, the ideal population for this research would have been all microfinance institutions in Ghana who are currently using mobile technology to run their business but since there is no proper database of MFIs in Ghana available, the target population for this research was made up of only MFIs located in the Ga East Municipal District (Abokobi-Madina and Dome-Kwabena). Also, getting access to MFIs is the hindering factor that prohibit the researcher from using the entire population.

3.3 Sample and Sampling Techniques

A total of 10 microfinance institutions represented the sample for this research. The duration for data collection lasted for about two weeks to allow ample time for any unforeseen difficulty in getting hold of the respondents. A convenience sampling method was used to draw out the portion of the population. This sampling method was chosen because

available data on all MFIs and their location in the Ga East Municipal District was not readily available. Hence, convenience sampling enabled the researcher to have easy access to data from respondent and be able to collect the necessary information within the stipulated two weeks period.

3.4 Data Collection

The form of data that was collected during the data collection period consisted of primary data. The primary data gathered contained information which was obtained from the questionnaires answered by microfinance institutions. An IT company Logiciel has developed a microfinance application platform that automates the operations of the MFIs by enabling agents of MFIs to log unto the platform and save data of all monies collected while in the field. An interview section was arranged with an official of Logiciel to understand the functionalities the gKudi microfinance platform offers its users.

A well-structured questionnaire was used in obtaining data. The questionnaire was administered by means of a survey. The main language used in this survey is English, as and when necessary the Akan language (Twi) was also spoken to facilitate communication. The researcher recognized that to facilitate an effective communicate with MFIs, interviews must be communicated in two main languages thus in English and the Akan Language. This is to ensure respondents get a clear understanding of questions asked. Questionnaires were however written in English only. Respondents who cannot read were assisted by the researcher. The questionnaires consisted of both open ended and closed ended questions. The open ended questions were intended to ensure that a varied range of responses are obtained from respondents. It also allowed respondents

enough freedom to respond to questions as the respondents determine the length and details of responses. Closed ended questions are intended to restrict the level of detail information that were provided by respondents and reduce the risk of misinterpretation of responses. Open ended questions are intended to allow respondents to express their opinions or views on questions asked.

To ensure that respondents give responses to as many questions as possible, the questionnaires were presented to a select few persons to review. The questionnaire testing ensured that respondents do not find any questions offensive or too confidential to answer and also to detect ambiguities in the questions. Questions that may be ambiguous or that seem offensive and confidential in nature were revised.

MFIs that wants to automate its operations through the use of mobile technology may have to invest a lot of money to develop and deploy an online application platform. However, after a period of time the automated system will allow the business to employ more agents to perform the Susu collection function of the business. As one of the main sources of revenue for microfinance is through the charging of fees deducted from the savings of clients, an increase in the number of clients will mean that the business will be earning more revenue. Also, when mobile technology automates a greater part of the business processes then the total amount of time spent on the job preparing reports will reduce considerably, allowing MFIs to concentrate on the customer service which is the core business activity that will lead to a profitable and sustainable business.

Chapter 4 Data Analysis

The response rate this research is 66.67% meaning that a total of 15 microfinance institutions were contacted to be interviewed but only 10 microfinance institutions participated in the survey. 6 of the MFIs were owned through sole proprietorship while the remaining 4 were owned through partnership. All firms operated from offices. 8 of the firms acquired their office(s) by renting an office space while the other 2 firms acquired their offices through inheritance. All firms have their businesses situated in the Ga East Municipal District. It was observed that microfinance institutions spend a lot of money in acquiring an office space to commence operation, employing agents to engage in the money collection aspect of the business and invest in other office equipment and stationary. When asked on why they decided to operate from an office most respondents stated that the competitive nature of the industry, the lack of trust for microfinance businesses, and the need to make themselves more accessible to their customers as some of the deciding factors.

Respondents were further asked on the average number of customers that they serve on a daily bases. Most respondents said they serve more than 200 clients in typical day and that the number of clients keeps changing because they have to constantly look for more clients so as to be able to earn more revenue and remain afloat.

4.1 The Use of Mobile Technology among MFIs

All respondents that took part in this research were found to be using some form of mobile technology. Out of the 10 respondents, only 1 of the respondents makes use of both mobile devices and a real time application software to monitor the operations of the business in real time, 7 of the

respondents use mobile devices with other business software in keeping records and the remaining 2 respondent uses only one type of mobile device without the use of any additional business software. When interviewed on the reasons behind their choice of mobile technological adoption, all respondents stated cost as the main factor because mobile technology seems to be the most readily available and cheapest technological solution available to them. It was however, found out that most microfinance institutions that were not using the real time software were aware of these new technology and were in the process of being rolled onto an already running platform. The arrangement were being made by either the association they belong to the bank they serve their money with.

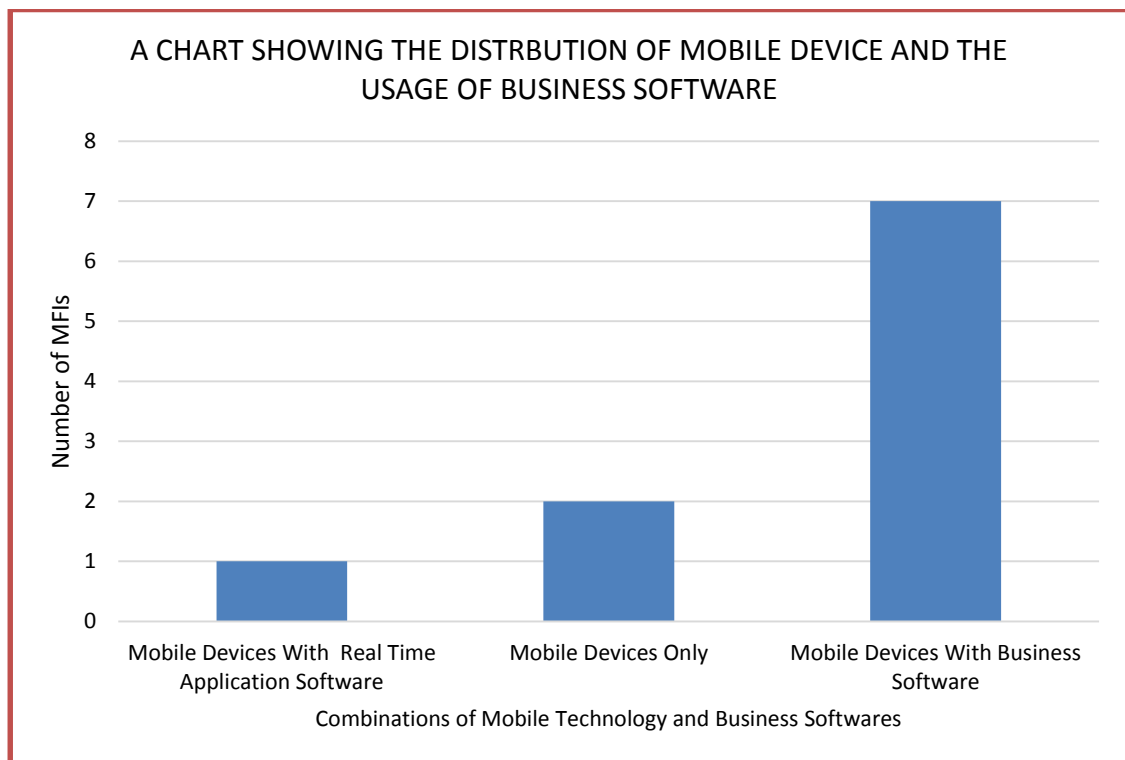


Figure 4.1

Data analysis on the ownership of mobile devices among MFIs showed that ordinary phones also known as feature phones are the

commonest mobile devices owned by all MFIs followed by laptops, smartphones and finally tablets computers. The managers of MFIs need to communicate with their agents in the field. Customers must also have a medium by which they can communicate with the business. The phone was seen as the commonest mobile device available and the fastest and cheapest means of communication. However, connectivity to the network provider was stated as the main problems associated with the use of mobile phones.

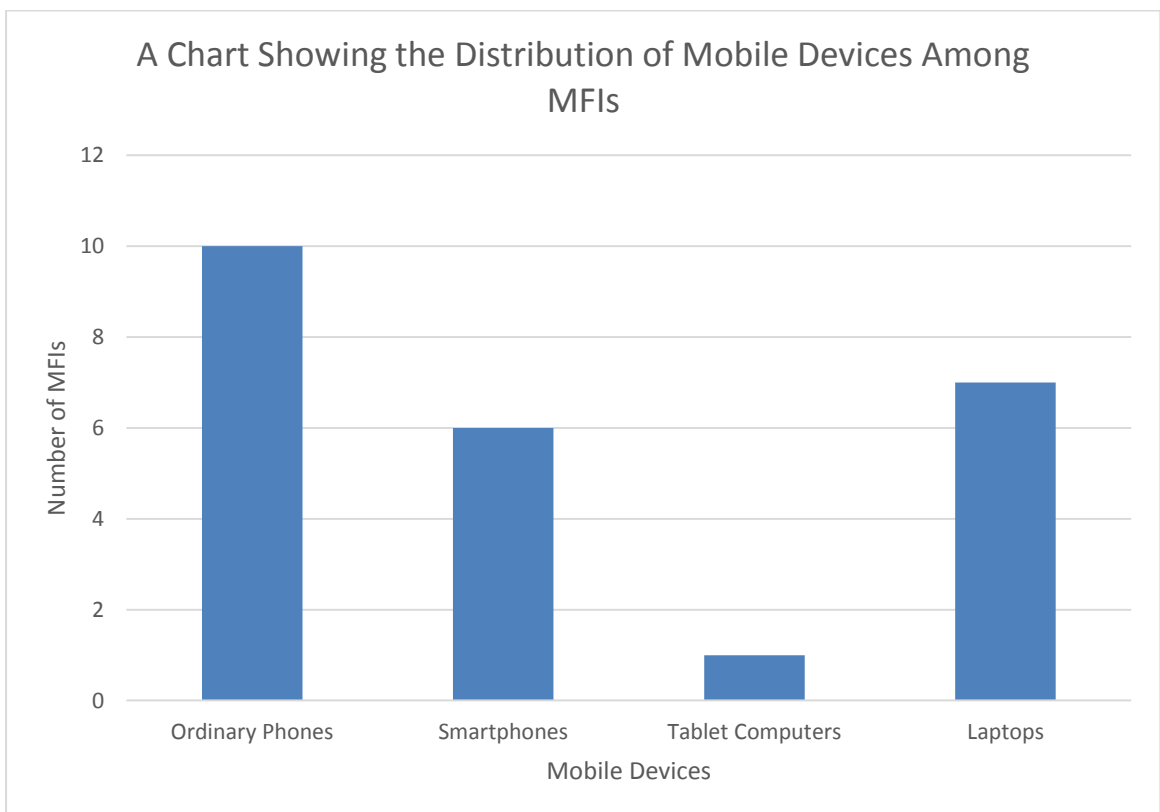


Figure 4.2

While investigating the various uses of mobile technology in microfinance institutions, it was identified that mobile devices were being used for a variety of purposes. Among which is the use of mobile devices for text messaging, making calls, taking pictures, and for storing data. 46% of mobile devices owned by MFIs are used for making calls, 27% for storing

data, 18% for text messaging and 9% use their mobile devices to take pictures. It is was noted that texting messaging and the use of the mobile device to take picture were said not to be frequent uses for mobile devices. The use of the mobile device to make phone calls and to store data were said to frequent purposes for which they use the mobile device. It based on this data it could be said that the dissemination of information within and without the organization is of outmost important the respondents hence the frequent use of mobile technology for making calls.

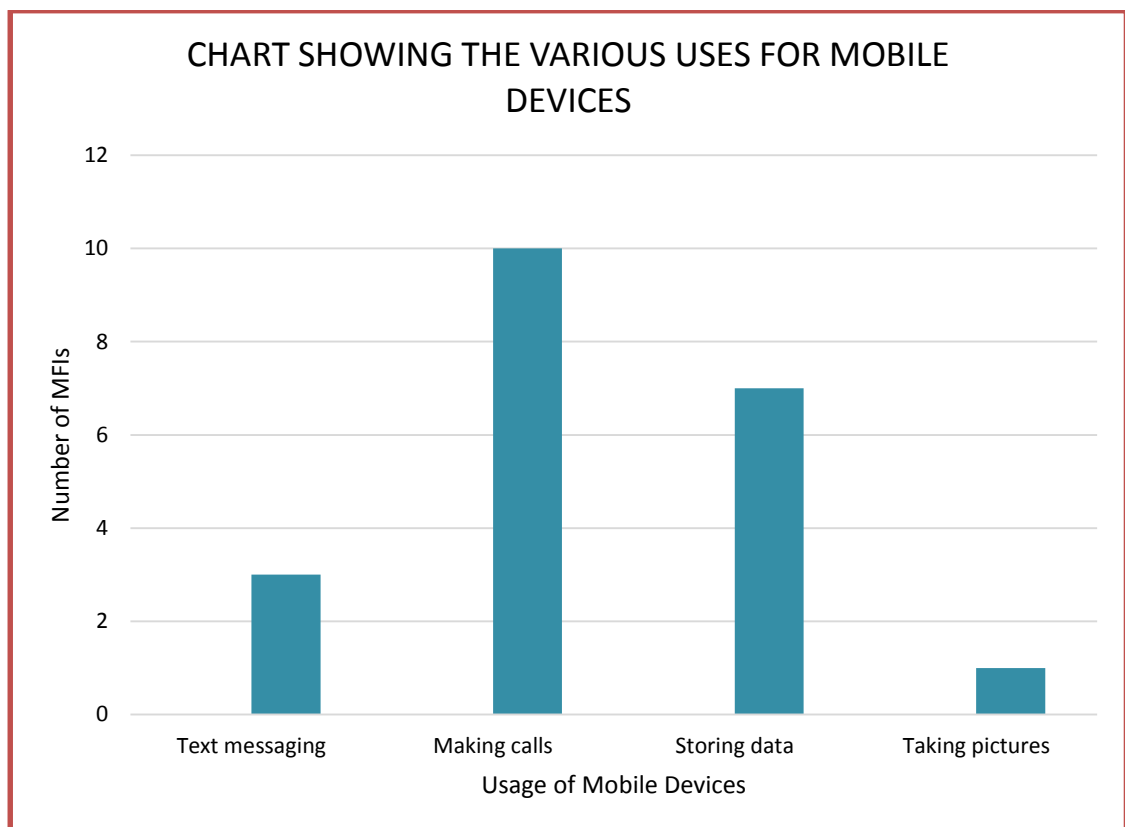


Figure 4.3

Respondents were also asked to state the various problems they used to encounter and how mobile technology has helped in solving these problems. Responses received indicates that the amount of time spent on back office operations and improper record keeping ranked as the most prevailing problems. Linking this result to the data on the distribution of mobile

devices and the usage of business software thus figure 4.1 showed that microfinance institutions decide to use a certain level of mobile technology base on their believe that it will enhance their utility. This is to say that microfinance institutions consider the cost and benefits of the decision to adopt any form of mobile technology.

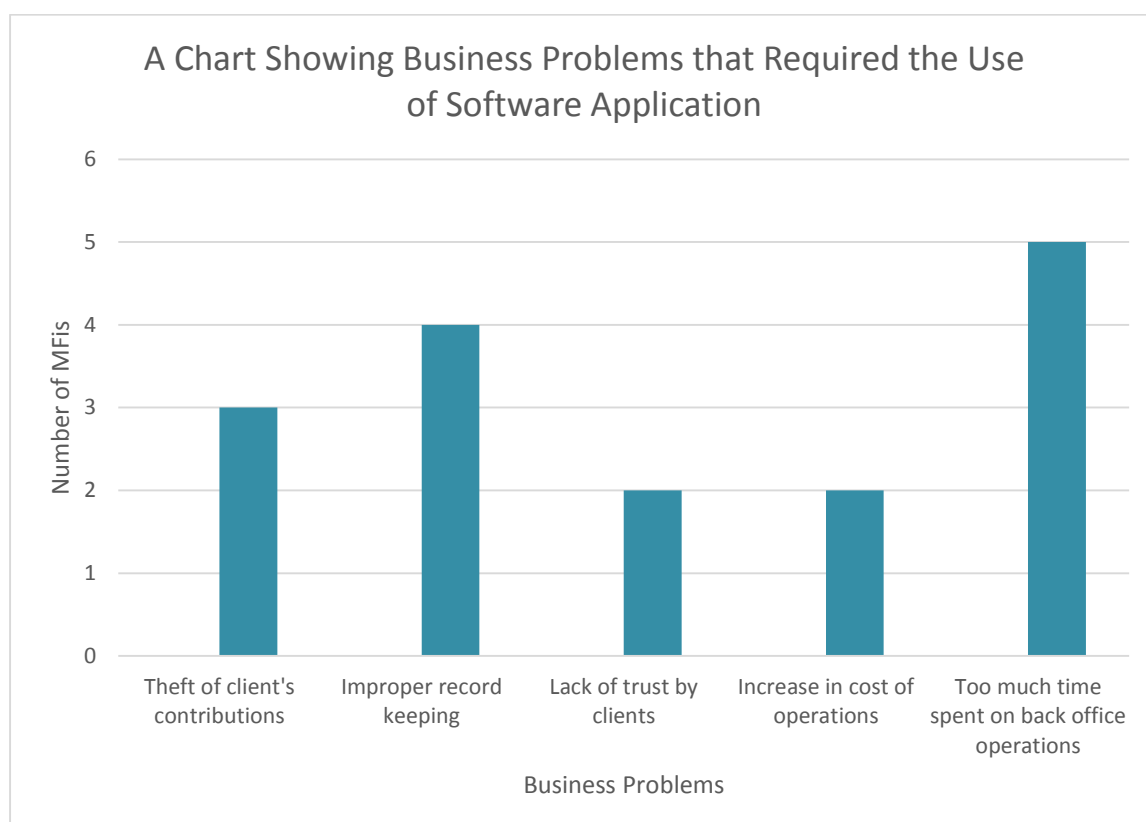


Figure 4.4

Overall, the 7 MFIs that use both mobile devices and business software perceived that mobile technology helps them to increase their revenue, 5 businesses out of the 7 perceive that they are able to reduce the time they spend on preparing reports and reduce the number of incidences of unreported monies being collected by agents, 1 firm neither disagrees nor agrees to the statement that mobile technology helps them to reduce the

amount of time spent on preparing reports while 1 business mildly agrees to the statement that mobile technology helps his business to reduce the number of reported incidence of theft by agents. It could be said with some level of certainty that mobile technology gives MFIs some of level of satisfaction as it is able to help MFIs solve some of their problems such enhancing communication within the organisation and the keeping of records.

Chapter 5

Conclusion and Recommendations

After careful analysis of the data collected, it was realized that MFIs interviewed use mobile technology in their business. There were three varies ways with which MFIs use mobile technology. The following is a breakdown of the variations:

1. MFIs who use mobile devices only.
2. MFIs who use mobile devices with other business software.
3. MFIs who use mobile devices with real time application software.

The feature phone was identified as the commonest mobile device in use by microfinance institutions. Among the MFIs that use mobile devices, the use of the mobile phone to make calls consisted 46% of total usage of mobile device. During the interview section most MFIs admitted that the feature phone was their most preferred mobile phone over other advance types of phone because it is cheaper, enables them to enhance communication within the organization and that all their competitors in the industry use the feature phone in their business operations. This is in agreement with the literature review, referring to the work of Rogers where he identified that people adopt a technology based on Knowledge, persuasion, decision, implementation and confirmation were identified to be the contributing factors to an MFI's decision to adopt to use a particular mobile device.

Among the prevalent problems that microfinance institutions encounter daily, the amount of time spent on back office operations and improper keeping of records constituted the two most prevalent problems for which MFIs use mobile devices and business software.

It was also realized that the firms interviewed, all operated from an office and out of the 10 respondents, 8 of the respondents incur cost in renting space to operate their business. Employee salary was said to constitute a big part of their cost of operation.

The main source of revenue for MFIs was through the periodic fees deducted from client's contributions for the service they provide and also from the interests charged on loans given to clients.

It is however worth noting that mobile technology helps to provide solutions to the problems of the MFIs by improving on the how records of the business are prepared and kept and also reducing the amount of time spent on reports preparation but does not necessarily improve upon the time spent on the amount of time spent by agents in the field collecting savings from clients.

5.1 Recommendations

The findings in the research were consistent with the findings on the work done by Rogers on the diffusion theory of innovation, Anand Rai, and Kabir. It is therefore recommended that MFIs should be careful when making decisions that will involve the spending of a large sum of money in mobile technology. This because investment in technology is an expensive undertaking which should not be taken lightly.

Microfinance institutions should not invest money into creating their own real time applications to monitor their business operations at the early stage of the business; since the cost involved in such an undertaking is very huge and time consuming.

Also, since the capital of MFIs are different and their needs may need different levels of technological solutions firms must do the cost – benefits analysis their decision to adopt mobile technology before venturing into the adoption of mobile technology.

Also, MFIs should use all available mobile technology. This way they will be able to reduce their cost of operation and monitor business activities to an extent. However, larger firms who have adequate resources to undertake an in-house software development project should rather sort to outsource IT services to firms that offer real time application services on the cloud as it will reduce the cost incurred in starting once own information system.

Appendix 1

INTRODUCTION

I am a student of Ashesi University College and researching on the use of mobile technology in microfinance in Ghana. I am going to give you information and invite you to be part of this research. Before you decide, you can talk to anyone you feel comfortable with about the research.

This consent form may contain words that you do not understand. Please ask me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask them of me.

PURPOSE OF THE RESEARCH

Recent advances in mobile technology have made it possible for microfinance institutions (MFI) to make use of application platforms through the use of mobile devices to record data while in the field. These application platforms allow MFI to collect, transmit, and process data collected by agents in the field and monitor clients' accounts and the general performance of the business. Where as in the past MFIs recorded their business activities manually, the introduction of mobile devices coupled with the use of application platforms in the operation of the microfinance is intended to automate the business processes. The purpose of this survey is to determine the needs of microfinance institutions, to determine how mobile technology is being used and to determine the best business practices in the industry.

TYPE OF RESEARCH INTERVENTION

This research will involve your participation in answering a questionnaire which is estimated not to take more than 30 minutes.

PARTICIPANT SELECTION

You are being invited to participate in this research because your knowledge in operating a microfinance institution may help to answer the questions that this research seeks to answer.

VOLUNTARY PARTICIPATION

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. Nothing will be done to you in any way should you at any point decide to stop.

PROCEDURES

Your assistance is needed in helping me learn more about the impact mobile technology has had on your operation. You are being invited to take part in this survey. If you accept, you will be asked to fill out a questionnaire which will be provided by Doe-Bansah Elikplim and collected by Doe-Bansah Elikplim. You may answer the questionnaire yourself, or it can be read to you and you can say out loud the answer you want me to write down.

If you do not wish to answer any of the questions included in the survey, you may skip them and move on to the next question. The information recorded is confidential, your name is not being included on the forms, only a number will identify you, and no one else except the principal investigator and supervisor shall have access to the responses.

DURATION

The research shall take about 30 minutes to complete during which you are encouraged not to hesitate in asking for assistance in filling the questionnaire.

BENEFITS

Your participation in this research may not yield any immediate or direct benefit to you, but your participation is likely to help me understand how the use of mobile technology has changed the way you operate and the benefits you have gained from using mobile technology.

REIMBURSEMENTS

There will be no remuneration for taking part in this survey nor will there be reimbursement for time spent answering the questionnaire.

CONFIDENTIALITY

The research may ask you questions concerning yourself or your business which you may consider personal or confidential. We will not be sharing information about you to anyone outside of the research team. The information that will be collected from this research project will be kept private. Any information about you will have a number on it instead of your name. Only the researcher will know what your number is and will lock that information up with a lock and key. It will not be shared with or given to anyone except the research supervisor, and Ashesi Human Subject Review Board.

SHARING THE RESULTS

No information provided in this survey will be attributed to you by name. The knowledge that we get from this research may be shared with you if you so

wish. Research results may be made available on Ashesi website where other interested people may learn from the research.

RIGHT TO REFUSE OR WITHDRAW

You do not have to take part in this research if you do not wish to do so. You may stop participating in this survey at any time that you wish without any recoil. You shall be given an opportunity at the end of the survey to review your remarks, and you can ask to modify or remove portions of those, if you do not agree with my notes or if I did not understand you correctly.

WHO TO CONTACT

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact:

Doe-Bansah Elikplim

Tel: 0240 784 361

Principal Researcher

"This research protocol has been reviewed and approved by the Ashesi University Human Subjects Review Committee. If you have questions about the approval process, please contact Chair, Ashesi University HSCR, and rdouglass@ashesi.edu.gh".

You can ask me any more questions about any part of the research study, if you wish to. Do you have any questions?

Appendix 2

CERTIFICATE OF CONSENT

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study.

Name of Participant _____

Signature of Participant _____

Date _____

Day/month/year

FOR PERSONS WHO CANNOT READ

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Name of witness _____

Signature of participant _____

Signature of witness _____

Date _____

Day/month/year

STATEMENT BY THE RESEARCHER

I have accurately read out the information sheet to the potential participant, and to the best of my ability made sure that the participant understands all details pertaining to the survey.

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

A copy of this ICF has been provided to the participant.

Name of Researcher consent _____

Signature of Researcher consent _____

Date _____

Day/month/year

Appendix 3

QUESTIONNAIRE

Date: ____/____/____

Recent advances in mobile technology have made it possible for microfinance institutions (MFIs) to make use of application platforms through the use of mobile devices to record data while in the field. These application platforms allow MFIs to collect, transmit, and process data collected by agents in the field and monitor clients' accounts and the general performance of the business. The purpose of this survey is to determine needs of MFIs and how they are using mobile technology to solve these problems.

Please do not write your name on the questionnaire as all responses shall be treated as confidential and anonymous. You are also free to refuse to answer any question or decide to opt out without any consequences. Thank you very much for taking the time to complete this questionnaire, your effort is greatly appreciated.

Section A: This section collects information on the business activities.

1. How is the business owned? Through

A. Sole Proprietorship []

B. Partnership []

C. Limited Liability Company []

2. Where is the business operated from?

A. Home []

B. Office(s) []

If your answer to question 2 is [A] skip to question 4.

3. How were the office(s) acquired?

A. Rented [] B. Leased []

C. Purchased [] D. Self-Built []

E. Inherited []

4. How many branches of the business are currently operational?

.....

5. Are the offices located in the communities where they serve?

A. Yes []

B. No []

6. How long has the business been operational?

A. 0 - 3 years [] B. 4 - 6 years []

C. 7 - 10 years [] D. more than 10 years []

7. How many employees are employed in the business?

A. 0 - 3 [] B. 4 - 6 []

C. 7 - 9 [] D. 10 and above []

8. In the next two years do you have any plans of expanding the business?
 A. Yes []
 B. No []
9. On average how many clients are you able to serve in a day?
 A. 0 - 49 [] B. 50 - 99 []
 C. 100 - 149 [] D. 150 - 199 []
 E. 200 and above []
10. On average how much contribution does a client contribute in a day?

11. Do you save the monies collected in a bank account?
 A. Yes []
 B. No []

If your answer to question 11 is [Yes] skip to question 13.

12. Why are you not saving the contributions in a bank account?

13. On average how much time is spent on the following activities:

No.	Activity	Average time
1.	The preparation of daily reports	
2.	Collection of contributions from clients	

14. Kindly state any other service(s) being offered to clients?

Section B: This section collects information on the usage of Mobile Technology.

15. What kind of mobile device(s) do you use in the business?

- A. Ordinary Phone [] B. PDA []
 C. Smartphone [] D. Tablet Computers []
 E. Laptop [] F. Other (please

specify).....

16. What are the mobile device(s) used for? (**Select as many as necessary**).

- A. Text messaging [] B. Making calls []
 C. Storing data [] D. Taking pictures []
 E. Making videos []
 F. Others (please

specify).....

.....

17. Has the business subscribed to any mobile application platform that helps in managing the business?
- A. Yes
 - B. No

If your answer to question 17 is [No] skip to question 25.

18. What functionalities does the application provide to the business? **(Select as many as necessary).**
- A. Real time online monitoring of all collections
 - B. Real time view of cash in hand
 - C. Real time production of receipts for collections
 - D. Detailed client outstanding balances
 - E. Extensive Management reports
 - F. Customer detail statement
 - G. Auto SMS alert
 - H. others

specify.....

19. What problems were being faced in the business before deciding to use the software? **(Select as many as necessary).**
- A. Theft of client's contributions
 - B. improper record keeping.
 - C. Lack of trust by clients
 - D. Increase in cost of operations.
 - E. Too much time spent on back office operations.
 - F. Others (please

specify).....

.....

20. How has the application helped to solve the above selected problem(s)?

.....

21. What responses/reactions do you get from your clients since you began using the software?

.....

22. How do you feel about the following statements, "mobile technology help(s) me to....." **(Circle one number for each statement).**

STATEMENT	Strongly disagree	Mildly disagree	Neither agree nor disagree	Mildly agree	Strongly agree

Reduce the time spent on preparing reports?	1	2	3	4	5
Reduce the amount of unreported monies collected by agents?	1	2	3	4	5
Reduce the cost of operation?	1	2	3	4	5
Increase revenue?	1	2	3	4	5

23. Kindly state any problems encountered while using the software?

.....
.....
.....
.....

24. Suggest any way the business software can be developed or improved to enhance business efficiency.

.....
.....
.....
.....

Kindly skip to question 30.

25. Are you aware of the existence of software that have been created specifically for microfinance institutions?

- A. Yes []
- B. No []

26. How would you rate your level of computer literacy?

- A. Beginner []
- B. Intermediate []
- C. Advance []
- D. No Knowledge of computers []

27. Why are you not using any software?

.....
.....
.....
.....

28. How do you determine the progress of the business or monitor business activities?

.....
.....
.....
.....

29. Briefly describe a typical day in the business:

.....
.....
.....
.....
.....

Section C: This section will provide the researcher with basic information about who took the survey.

30. Gender: A. Male [] B. Female []

31. Age:

A. below 20 years [] B. 20 – 29 years []
C. 30 – 39 years [] D. 40 – 49 years []
E. 50 years and above []

32. What is your highest level of education?

A. Primary School []
B. Junior Secondary School []
C. Senior Secondary School []
D. Tertiary []
E. No Formal Education []

Thank you very much for your participation and patience. I will get in touch if I need any further clarification.

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