

THE USE OF MOBILE MONEY AS DRIVER FOR FINANCIAL INCLUSION

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DECLARATION

I, Syilina Simelane declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the Graduate School of Business Administration, University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

S. Simelane

Syilina Simelane

Signed atJohannesburg.....

On the ...27th.... day of ...February ... 2023

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Abstract

Technology has contributed greatly to innovation. Since the advent of the internet and computers have increased the pace of innovation. Innovation has been moving at light speed. However, a large percentage of the population have not been able to enjoy the benefits of this growth in technology. The one invention though that has permeated all corners of the globe is the cellular phone (mobile phone). Cell phones have become ubiquitous. Their main function is to keep people connected. The cell phones' other functionalities and compactness adds to the allure and necessity of the cell phone.

Technology has also created an expectation in consumers. The expectation that they will receive products that will perfectly satisfy their needs. As noted in my research, I will review the methodology, setup, considerations and past successes of other countries in providing solutions that fit the needs of consumers of mobile banking. In countries such as India, Kenya and China.

The purpose of this study is to determine how Mobile Network Operators can play an integral in the financial inclusion of low-income individuals through Mobile money applications. At current the availability, use and adoption of mobile money applications is low. This is due to several impediments that exist to low-income users. Some being awareness of the application, understanding on how to use the application and the benefits they may gain. The study reviews these impediments and offers suggestions on how to overcome these impediments. Mobile Network Operators (MNO) help improve access to mobile phones and in turn increase access to mobile banking applications. This research shows that increased use of mobile money application improves lives of those using these applications. It increases access to finance, creating more revenue for businesses using the application and Mobile Network Operators, that in turn increases the overall Gross Domestic Product (GDP).

Through this research we find that Mobile Network Operators have a role to play in financial inclusion, however it will require a strategy that focuses on educating low-income individuals on available applications as well as creating solutions that are tailored for the needs of low-income individuals.

Keywords

Mobile Network Operator

Financial Inclusion

Fintech

Banking

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CHAPTER ONE

1.1 INTRODUCTION

South Africa is a highly segregated society. This stems from the aftereffects of apartheid that ended in 1994. The segregation that was once racial is now being experienced on the financial plain (Kirsten, 2006). The end of the Apartheid era opened a plethora of opportunities in South Africa. However, for those that lacked access to financial education, they continue to be marginalised. The South African story of a post regime country left to become a democratic state, with a low-rate education among the locals, especially around finance and governance is very similar to many parts of Africa (Kirsten, 2006). The world over is looking for solutions to these issues. One such solution can be found in technology. Nearly two thirds of the population of the world currently live in poverty. Majority of which do not have a formal bank account. The one common ubiquitous item they do possess is a mobile phone. (Gencer, 2011)

Financial Inclusion is a driving force behind economic growth. (Disha Bhanot, 2012) cite (Kempson and Whyley, 1998) stated that to address financial inclusion, one needs to understand why financial exclusion may exist. Financial exclusion includes:

- access regarding physical distance to access financial services
- pricing regarding high prices for low-income individuals for financial services
- terms and conditions that govern the service making it unappealing to the consumer
- Lack of knowledge of the product/service offered by financial institutions
- choosing to be excluded based on a belief system

Financial inclusion benefits both the individual as well as the country. Below are two definitions around financial inclusion.

a) “*Financial inclusion* refers to the access and usage of financial services to provide appropriate and beneficial financial services and products” (Shipalana, 2019, p. 2). As noted by (Bester, Koker, & Hawthorne, 2004), these barriers to inclusion into the formal banking sector include formal documentation to prove identity and high transaction costs.

b) “*Financial inclusion* is defined as the process of ensuring access to financial services (savings, insurance, remittance, payments, etc.) and timely and adequate credit where needed by vulnerable groups such as weaker sections and low-income groups at an affordable cost” (Disha Bhanot, 2012, p. 465).

To address this disparity for low-income individuals many financial services providers have looked to mobile digital financial services. “Mobile Network Operators (MNOs)

have dominated mobile money services in Africa for the past decade. More recently, FinTech's have established a solid footing in the market, and several banks are beginning to compete aggressively for the mobile banking customer." (Mutsa Chironga, 2017)

"Mobile banking refers to provision of banking and financial services with the help of mobile telecommunication devices" (Chandran, 2014)." "For 'mobile financial services,' alternative search terms include the various financial services enabled by a mobile device, such as "mobile money", "mobile payment", "mobile transaction", "mobile wallet", and 'mobile banking' " (Kim Minjin, 2018)

"In Africa today, there are 100 million active mobile money accounts (used by one in ten African adults)" (Mutsa Chironga, 2017)

The National Development Plan -NDP (Sahu, 2020) through the Statistics South Africa 2020 consensus that 90% of households have a cellular phone by 2018. Cell phone penetration plays a major role in financial inclusiveness by opening access and increase awareness. Within that same setting the percentage of households that have at least one member with access to the internet is now 64.7%. The positives that stem from the report is that smartphone penetration has increased to 65% and fibre to home has tripled over the period 2015 to 2019 to 3.1 million users. (Sahu, 2020, p. 78)

The combination of the availability and penetration of mobile phones and the evident need for financial inclusion makes mobile banking a viable and exciting option for low-income users.

1.2 CONTEXT AND RATIONALISATION

The National Development Plan of 2020 (Sahu, 2020) highlights 3 agenda points that can work together to increase both financial inclusivity as well as GDP growth. The need for which is paramount to foreign investments and development in South Africa.

- 1.2.1 "SA Connect" (Sahu, 2020, p. 110) which is framework to increase access to the internet for all South Africans. Through partnerships and frameworks with private entities. The vision hopes to have 90% of the population with 5 Mbps of broadband by 2020.
- 1.2.2 Increased focus on high value service that can be exported to other countries e.g. finance.
- 1.2.3 Ensuring digital access from initiatives at school level to cheaper data plans with MNO's.

If foreign investment grows so will the Gross Domestic Product (GDP) and in turn employment and the standard of living of the average South African. For the system to work in unison, there requires access to the internet as well mobile financial service providers to open new avenues for low-income individuals.

As Mobile Network Operators (MNO) enter the financial services space, they create competition for banks and other formal financial institutions. They disrupt traditional methods of access to financial services and provide financial services to a previously overlooked market.

“Financial Inclusion is an area of great significance and relevance. Financial inclusion allows low- income individuals entry to the formal financial sector for those who are marginalized and financially excluded. Mobile money operators have been acclaimed as a significant contributor in promoting inclusive growth and reducing the vulnerability of the poor and excluded” (Chakraborty, 2013). The analytics gathered through cell phone use and coupled with financial needs could redefine the way we advertise and manage clients.

1.3 PROBLEM STATEMENT

Banks only service about 30% of the bankable market in South Africa. Leaving 70% of the market unattended and unbanked (Shipalana, 2019). Banks have noticed that mobile applications are a cost-effective method to increase their user base. To extend their reach and user base. The underlying criteria to access a banking application is still a bank account. Bank accounts require legal documentation and proof of consistent income.

Poverty is not just the absence or lack of money. It is also the exclusion from different methods and ways for the poor to access financial assistance that leads to financial growth. When this is the case, low – income individuals are limited from accessing savings, insuring, and investing facilities widening the poverty gap (Kevin, 2012). Not only is the need to financial inclusion relevant to the individual, it is also relevant to the economy. The transactions and monetary value of the exchanges through mobile banking could boost economic activity purely based on increased access to credit and safety of transacting. Can telecommunication companies truly address the needs of low-income individuals, that require financial services?

FinTech start-ups also recognise the ease of entry into low-income consumer base. Offering more tailored solutions than banks, without the barriers of entry makes non-banking applications more attractive. The SIM card is now the unique identifier of the user. While this raise concerns around Sim swaps, and mobile phone safety, it is not a deterrent to using Mobile financial services. (Mutsa Chironga, 2017).

Having noted that the low-income population is financially under serviced, that the lack of access to formal banking perpetuates poverty and that there are barriers to entry. The purpose of this study is to investigate these barriers and offer suggestions to alleviate them

It is imperative that the researcher understand what are the determinants that make mobile money applications attractive and helpful to users.

Research Questions:

- What are the deterrents/ impediments of adoption of mobile money applications for low-income users?
- What level of awareness of mobile money applications exist amongst low-income users?
- Does the use of mobile money application increase access to financial services previously unavailable to low-income users, such as loans, saving and investing?

1.4 OBJECTIVES OF THE STUDY

The objectives of this paper are:

- 1.4.1 Determine the contribution that MNO can have in increasing financial inclusion and hence economic growth.
- 1.4.2 Determine what makes mobile network operators' financial digital applications more suitable and accessible than the banks mobile applications.
- 1.4.3 Suggest ways to improve awareness and usage to mobile financial services offered by mobile network operators.

1.5 ASSUMPTIONS AND LIMITATIONS

Assumption: I have only used literature previously obtained in assessing the need for mobile financial services. I will also assume that the terms 'mobile financial services' and 'mobile money services' can be used interchangeably in the paper. It will also exclude any mobile banking services as part of mobile financial services to assess the suitability of mobile money services provided by Mobile Network Operators (MNO). Another assumption is that Africa will follow the trend of other world countries in mobile financial, mainly mobile money applications far as uptake, usage, challenges and benefits. The study will focus on South African users that may have access of mobile banking applications. Their scope of use and any limiting factors if any in using mobile financial services.

Limitations: The study will be limited to people in the Johannesburg, South Africa region. It was aimed at finding low-income individuals. The study will be limited to the group that answers the questions. The limitation also extends to how the questions may be interpreted by each individual respondent. While mobile financial service encompasses varied offerings this paper will aim to assess the benefit to users who use it for transfer of funds, saving and access to small loans, as this has been determined as the factors that increase financial inclusion.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

East Africa has had much success with Mobile Money applications. Several countries that implemented mobile money applications increased access to financial assistance for low-income individuals.

One such example is Uganda. Uganda has made strides through the years to increase the number of people in the financial sector. At the beginning of 2009 only 20% of the population was formally included in the banking sector. Since 2009, Uganda has introduced mobile money initiatives that has expanded the use of mobile financial services across the country. This has led to more than half of the population, around 21.6 million, being registered users of mobile financial services. By the end of 2016 this included 5.2 million new users that would have previously been not able to access formal financial services (Lakuma, 2019).

Another success story is that of M-Pesa in Kenya. M-Pesa's success could ignite any other African country to mobilise a mobile money solution that serves low-income individuals. M-pesa's growth, penetration, numbers of users and consumer relevance is a positive example to many African countries. Later in this research paper I will cover, in depth the success of M-Pesa in Kenya.

2.2 LITERATURE BACKGROUND

(Kevin, 2012) stated that according to the Consultative Group to Assist the Poor (CGAP) approximately a billion people that have mobile phones do not have a formal bank account or access to the formal financial sector. Having access to financial services will benefit the "poor". Moreover, platforms increase the rate on of innovation of subsidiary services by addressing needs that arise from the benefits of mobile money applications besides saving, borrowing, and investing.

In this literature review I looked at the infrastructure needs for Mobile Money applications to be implemented so that everyone can access the application. Also, the legal considerations around implementing mobile applications. To highlight the outcomes of financial inclusion I have reviewed the need for transformation in Africa, how prevalent mobile phone usage is and what structures are in place as well as those needed. Once transformation exists then what drives financial inclusion. All these together should paint a picture for mobile banking's role in financial inclusion.

2.2.1) Infrastructure in Africa

The World Bank has noted that for Africa to grow, they will need large improvements in both physical and Information and Communication Technology (ICT). However, these

factors are co-dependent. (Britz, 2011). Holmer and Britz stressed that for a successful and aggressive transformation in ICT there needs to be an equally robust plan for progressing the physical infrastructure of the country. The development of both physical and technology infrastructure is usually halted by the cost to do so. Most African countries, South Africa included are unable to source cost effective means to improve infrastructure.

Infrastructure improvement means better roads, cost effective public transport, water and electricity, cell phone technology amongst others. Improved infrastructure improves the economy and increased the average disposable income for the population. Therefore, for this study the greater number of individuals that have access to income, the greater the need to mobile money applications. The product becomes viable and profitable.

2.2.2) Legal challenges in Africa

Legislation is a huge factor to be considered when entering this market of mobile banking. According to (Alampay, 2010) Telcos have had to now concern themselves with:

- 1) Market entry: in this case Telcos can stand alone or have a banking entity to back them, depending on how involved the MNO choose to be, they may choose to obtain their own banking licence or rely on the bank to assist with borrowing, saving and transacting.
- 2) Anti-competitive behaviour that maybe encouraged just to maintain the user on the network and avoid churn. Operators may begin price wars that will lead to anti-competitive behaviour.
- 3) Access to scarce resources. In the case of Africa this is access to 3G above networks enabled mobile phones. The “generation” (2G or 3G) greatly affects the experience of the mobile application and the encryption software. Network access also affects the availability to bandwidths, download and upload speeds.
- 4) Tariff regulations that determine the cost of remittances for the banking individual
- 5) Interconnection is the ability to get access to the service despite the network the user is on. Hence a user can bank at a different network provider versus the one being used for connectivity.

Another legal consideration for Mobile Network Operators is the management of risk and fraud within the process. As South Africa lacks a robust and progressive legal and criminal prevention system, fraud is highly prevalent. Below is an outline of possible fraud considerations as identified by other Mobile Network Operators.

Potential frauds in mobile money		
Transactional	Channel	Internal
■ Vishing/Smishing: Use of phone calls or SMS to gather personal details such as account numbers, PINs or personal identification details. ■ Advance Fee scams: Customers duped to send funds under fake circumstances or promises. ■ Payroll fraud: Non-existent or “ghost” employees receiving funds. ■ Reversal Requests: Customer requests to reverse transactions that were in fact successful. ■ False transactions: Sending fake SMS to make customers believe a transaction was successful. Often accompanied by a reversal request.	■ Split transactions: Agents split cash-in transactions in order to earn multiple commissions (only applies to tiered commission structure). ■ False transactions: Agents transferring customer funds to personal account. ■ Registration Fraud: Creation of accounts for false, invalid or duplicated customers for the purpose of obtaining extra registration commissions.	■ Internal fraud: Employees colluding for unfair personal financial gain. ■ Identity theft: Employees accessing and exploiting customer information without authorisation.

Figure 1 :Fraud Considerations on Setup of Mobile Money

Source (Joyce, 2012).

(Joyce, 2012) offered several considerations for Mobile Network Operators in dealing with fraud and criminal activity that can arise with the mobile application system. Such as employee risk of theft that will have an impact on revenue and reputational damage Reconciliations of the agents that transact on cash withdrawals that could also lead to a loss in revenue.

2.2.3) The need for transformation

Improved infrastructure would lead to economic growth and international participation. The lack of these infrastructures means Africa cannot benefit fully from the available technologies (Alampay, 2010). In the article a deeper dilemma is addressed the issue of globalisation. The move from a production-based economy to an information-based economy. The information economy allows new applications and relationships to be created. Like online retail stores, internet and phone banking and communication between buyers, suppliers, and sellers. These opportunities grow economies.

Lakuma postulated that greater financial inclusion assists in the impact of monetary policy by improving the size, composition, and stability of the formal financial sector (Lakuma, 2019). The author states that the use of mobile money allows flows of fund within families from the more affluent to low income individuals while protecting the value of the money allowing to spread out the consumption of the funds over time and allows low income households to hold more non- cash assets (Lakuma, 2019). This indicates the impact on each household and the possibility of lifestyle improvements. Overall, the transformation of the Mobile Money sector improves an entire eco system.

At this juncture I think it relevant to distinguish between mobile money (m-money) and mobile financial service. “M-money involves the use of mobile phone networks to make financial transactions using customers’ funds maintained by mobile network operators (MNOs). M-money is not the same as mobile banking” (Ahmad, Green, & Jiang, 2020). M-Banking is catergorized under the electronic banking sector. This is the availability of minor value of banking products such as making a deposit, loans, account management, eletroninc payments (Alampay, 2010).

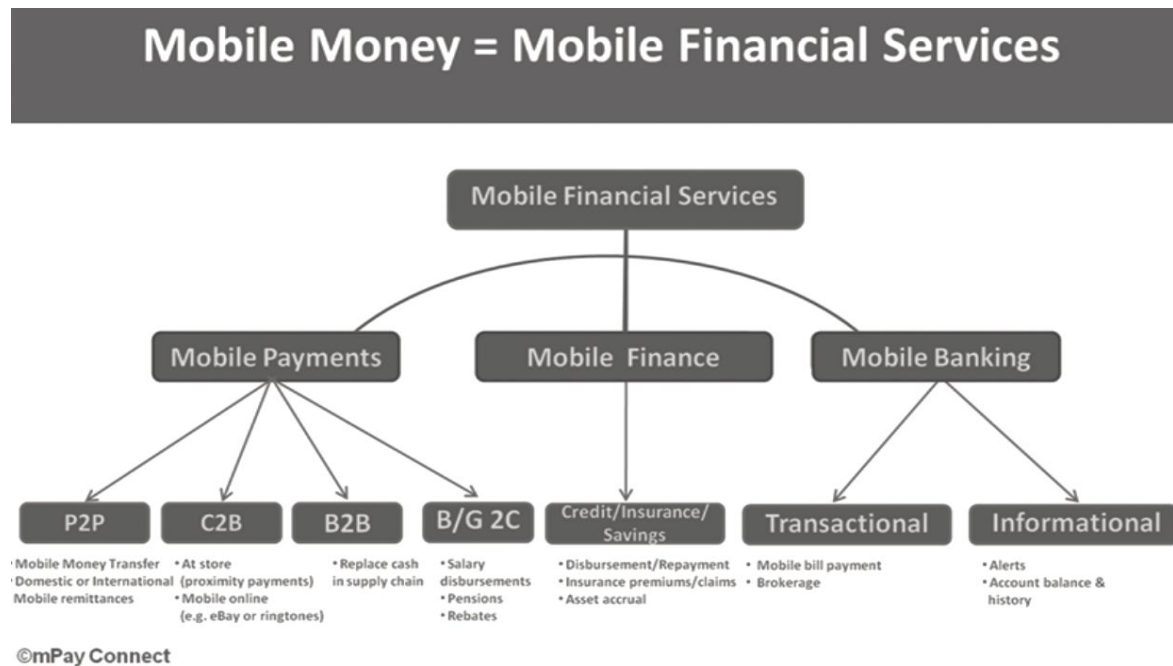


Figure 2: Mobile Financial Services Structures

Source: (Gencer, 2011).

Gerners diagram shows us that Mobile Financial Services far surpasses Mobile Money. While Mobile banking is only single mechanism within the system. Mobile financial services has a more complex and deeper role to play in the financial sector.

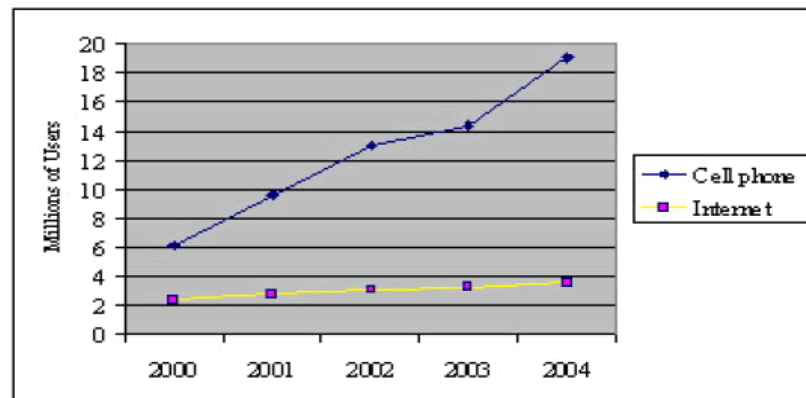
Alpamay quoted (Porteous,2006) that mobile banking can be ‘additive or transformational’ and his opinion its additive for current mobile banking customers, but transformational for those who will do not have formal banking. It will allow those not in the formal banking sector to be included.

The report by Tafotie stated that Digital Financial Services (DFS) is the key driver for financial inclusion. (Tafotie, 2020). While this is commendable the access is uneven throughout the geographies of South Africa (Sahu, 2020). Tafotie stated that physical banks may become irrelevant in India over the next three years. This is in line with the increase in adoption of mobile banking. Through mobile banking cash maybe become redundant all because mobile banking and digital services will take over as the new means of ‘banking’ (Tafotie, 2020).

There are three essential components to assessing how South African businesses are responding to digital opportunity. These include digitalisation of businesses, e-commerce and digital financial services, and digital entrepreneurship (Sahu, 2020).

2.2.4) Mobile usage

Over the past few decades, no other form of technology has had higher rate of adoption than the mobile phone. According to Brown's (Irwin Brown, 2003) study users preferred internet banking to cell phone banking as it was more desirable to users. Users, at the time, saw mobile phones as more a means to communicate than use for banking. Relaying back the need for mobile users' perceptions as awareness to be changed. Also displaying the need for mobile operators to create mobile banking that appeals to users.



Data Source: ITU, Internetworldstat, CellularOnline

Figure 3: Internet and Cell Phone Users in South Africa

Source: (Irwin Brown, 2003)

Mobile Network Operators could take full advantage of this explosive trend.

In Alvarez's study he identified the number of users per 100 people, denoting the level of penetration of mobile phones. South Africa ranks in the top three of mobile penetration with an average South African having 1,6 phones. This is propelled by Network Operators making cell phone financing easier.

Country	Mobile Subscriptions Per 100 People (2020)
 Macau	430
 Hong Kong	291
 South Africa	161
 Chile	131
 Poland	130
 Germany	128
 China	119
 United States	106
 Canada	85
 India	83

Figure 4: Alvarez study

Source: (Alvarez, 2022)

2.2.5) Mobile money through mobile network operators

Mobile Money providers fall in one of five categories: (Mutsa Chironga, 2017). The below shows the structure in which Mobile Network Operators can enter and roll out Mobile Banking.

1. Mobile Network Operator (MNO) dominant – Telcos run the network infrastructure the physical payments and partner with banks for savings and deposits.
2. MNO led partnership- here the MNO is being supported by a bank facilitating with minor loans and payments.
3. Bank-led partnerships with MNOs: Allows the user to transact with other accounts in the bank. The MNO offers services over and above the banking services and is a medium of access.
4. Bank models that have their own applications and allow users to send money to mobile numbers much like FNBs e- wallet or Absa's cash send.
5. Fintech solution/ Open Federation - these offer a group of services that the user can access through their mobile applications. Example Paga in Nigeria or MoMo in South Africa



Figure 5: Mobile Money provider archetypes

Source: (Mutsa Chironga, 2017, p. 4)

Mobile financial services are a means to offer financial services and banking transactions via Mobile Networks (Nur Alam Siddik MD, 2016). Despite the approach taken by MNOs they are far more successful, over the last decade, than FinTech or Banks.

“MNOs have built scale and momentum in mobile payments on three pillars:

- 1) Near ubiquitous distribution networks
- 2) Vast numbers of customers/strong market concentration.
- 3) A superior client experience. Of these considerable strengths, distribution is the MNOs’ main advantage.” (Mutsa Chironga, 2017)

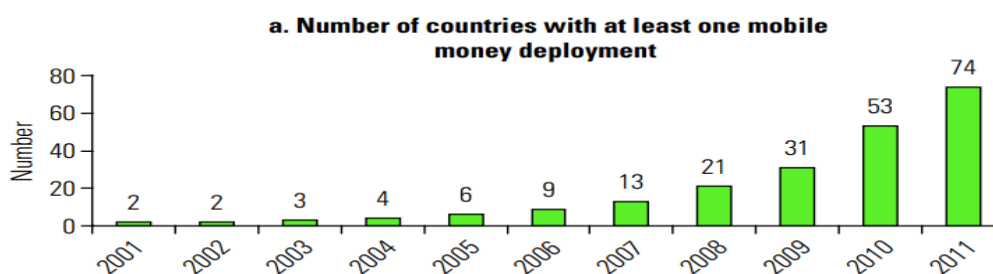


Figure 6: Global mobile money deployments

(Kevin, 2012)

Above show the expansion of mobile money service over a ten-year period. As the benefits and innovation around, mobile money grows so does the adoption and

implementation. Benefits that sometimes are not intentional but rather organic from the usage and “network effects” (Kevin, 2012) realised from the innovative ways users use the applications. As mentioned before benefits enjoyed by users of mobile money applications include lower transactional costs, safer form of saving money (as an alternative to having cash), maintained value of the cash (versus trading of goods that fluctuate drastically dependent on demand and supply), economies of scale (having a number of users on the same platforms adds ease of trade and increases trustworthiness) and propels innovation for products linked to banking like insurance.

2.2.6 Structure of Mobile money Services and Structures

Financial Service Providers require a distribution channel that is generally made of agents or digital self-service terminal's (Iheanachor, David-West, & Umuokro, 2021). These agents generally create awareness but also provide a central role in servicing the customer. The agents receive a commission.

In the case of M-PESA agents the Mobile Network Providers assist by retaining the commission till the end of each month and then the agent is paid out. Agent services include “registering a new customer, provide cash deposits/ withdrawal services” (Lyons, 2010)

The success of Mobile Network Operators where banks have failed is due to factors such as the perception of the service provider. The constant use and ease of access to the mobile network passes to the application (Dunn, 2015)

The (Kevin, 2012) states that mobile money is the use financial services through mobile devices. This may include paying someone on the same application, financing or insuring and banking. The use of “agents” assists with depositing and withdrawing for a nominal fee. The agents have cash floats that sit with a supervisor or agent assistant who manages the overall cash with agents. At the end of the day the money reconciled with the supervisor and banked to close off the day.

South African applications like MoMo (administered by MTN) allow users to deposit cash into a “wallet”. With the positive balance in their wallets users can pay the affiliated service providers like stores (e.g Pick n Pay), utilities and entertainment. Additionally for users that do not have bank accounts they may use the application to send money to another user that has the same application circumventing they need for a formal banking account.

2.2.6) Drivers of financial inclusion

“The term financial inclusion has been defined by various world-class institutions and its facets have been changing from time to time by inculcating a new approach to financial inclusion” (Maity & Sahu, 2022). Maity and Sahu go on to say that financial inclusion also encompasses bank accounts, banks facilities allowing access for many to financial

facilities. However, in the new world this is more broadly defined include “functional access points, availability of multiple finance-related services ahead of savings, accounts, availability of credit insurance etc. (Maity & Sahu, 2022).

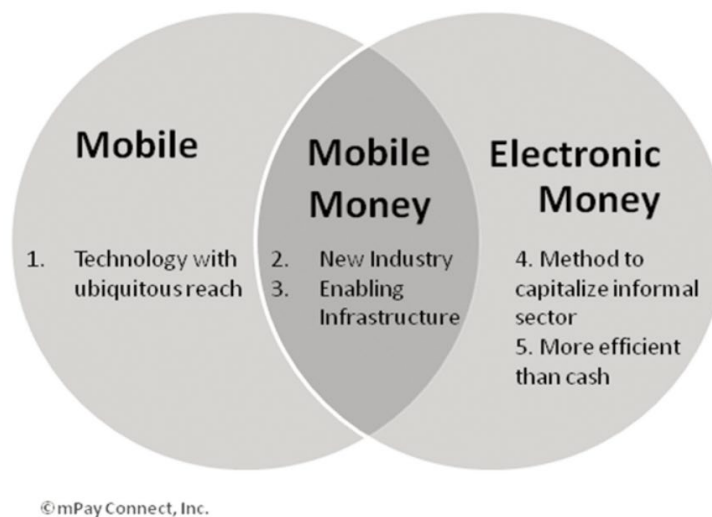


Figure 7: Mobile Money vs Mobile vs Electronic Money

Source (Gencer, 2011)

As per Meneske (Gencer, 2011) there are five “forces” that drive “growth” within the scope of Mobile Money. They aim to motivate and encourage growth within economies.

1. Fast and wide transmission of data (mobile phones)

The ubiquitous nature of mobile phones as well as the growing penetration of network in Africa, makes the mobile phone an ideal means of reaching a large audience of people. Networks have setup towers in almost every corner of the globe to ensure that they reach maximum coverage. This allows for mobile banking to have further reach than brick and mortar stores. There is also very little need for tellers, agents replace these and are only needed update or sometimes withdraw from the mobile wallet. The wallet allows for payments to many affiliated businesses partners. Since the costs are lowered in the mobile money

2. New industry that encourages investment and growth

Mobile Money is attracting new investment from all sectors in the economy , due to its success in Kenya, Uganda, India even China. Through the digitizing of payments, the reach is further than before. The number of jobs created directly by this new arm in the finance sector is indication of direct investment. Indirect investments stem from the number of auxiliary businesses that have now come into being due to mobile money.

3. Supports small business sustainability.

Mobile money uses the inherent advantage of connectivity to its advantage. The ability to pay and receive money from anywhere and discuss and be updated instantly. This lowers lead times, eases communication, and lowers the cost of doing business. Allow turnovers and return to occur at a faster rate. Businesses now can create micro versions of major industries like insurance (medical and financial) and advisory services. Supply chains can now be dispersed. One may act as a supplier without holding any physical stock as they may liaise directly with the manufacturer.

4. Formalising the informal sector

Mobile money has been able to “bring cash into bank deposits” (Gencer, 2011) allows for licenced mobile money operators to hold funds to in turn be able to lend, save and transact. This allows a safer environment for consumers to hold their cash. This moves many low-income individuals that previously kept cash at home to use mobile money applications and have access to their funds when they need it.

5. Mobile money more efficient than cash

The inefficiencies of keeping and transporting cash make it unattractive to keep. Mobile payments remove the risk of carrying cash physically. Users can trace their payments and keep records per beneficiary of previous transactions. Mobile money allows users to do business over long distances.

These five (5) factors add to Gross Domestic Product (GDP) by creating more businesses, creating more connections, allowing for more interactions between users, increasing safety and creating new business streams.

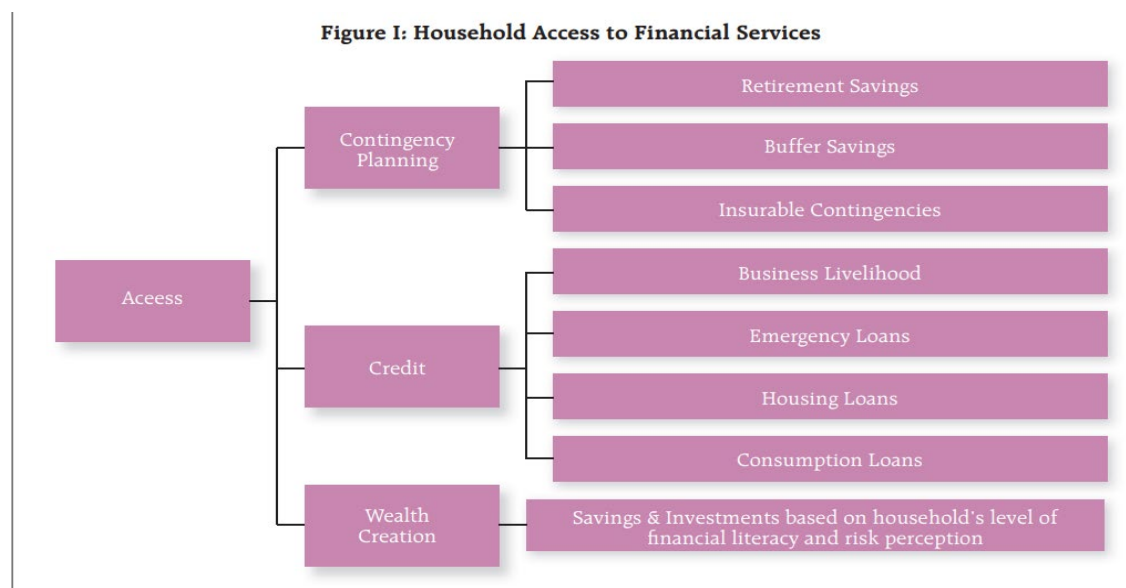


Figure 7: Fincial inclusion Source : (Bhaskar, 2013)

The above is a diagrammatic representation of the growth financial inclusion. Access lead to additional needs being fulfilled.

2.2.7) Benefits of financial inclusion

““Overcoming poverty is *not a gesture of charity*. It is an act of justice. It is the protection of a fundamental human right, the right to dignity and a decent life. While poverty persists, *there is no true freedom*. Sometimes it falls upon a generation to be great. You can be that great generation. Let your greatness blossom. Of course, the task will not be easy. But not to do this would be a crime against humanity, against which I ask all humanity now to rise up.”” - Nelson Mandela (Bhaskar, 2013)

Banks are not able to come to the aid of closing the gap, mostly because the expectation of bank users is that be serviced with all bank services and bank mobile applications are added value. A study of Bangladesh indicates that banks not been able to address due to high setup cost and the need to cover large geographies. (Nur Alam Siddik MD, 2016)

“Mobile financial services (MFS) usually indicate the use of a mobile phone to access financial services. In recent years, MFS have been recognised as an innovative and effective means to achieve financial inclusion by providing new financial services to excluded people” (Kim, Zoo, Lee, Kang, 2018) as cited by Sihvonen, 2006. The ubiquitous nature of mobile technology has allowed low-income earners to transact by reducing the cost of financial transactions while breaking down the barriers to financial services once only offered by the banks. (Siddik et al, 2016). “Mobile money is often linked to financial inclusion” (Kevin, 2012).

(Thulani, Chitakunye, & Chummun, 2014) cites McNaughton “the microfinance industry has demonstrated that the extreme poor are extremely bankable. Therefore, mobile money platforms can be an important tool for the financial inclusion of people without bank accounts and limited access to formal banking service in developing countries especially in Africa”. In order to measure the level of penetration that mobile money has on financial inclusion Thulani et al., looked at the impact on savings, information exchange, increased income and remittances and reduced costs.

In the report of DFID in 2004, economic inclusion was noted to have a probable effect on the household, firm and national levels on a positive note by allowing funding obtained assets that would lead to increased productivity. Financial inclusion specifically access to credit, means the entrant of new players in the economy. (Kim, Zoo, Lee, & Kang, 2018).

Ahmad, et al., (2020) assert that the one reasons that mobile money has mushroomed in Africa is the non-reliance on too much infrastructure such as land and electricity to run the platform. Ahmad et al also define the benefits being the low cost of sending and receiving money. The greatest benefit for users as indicated by Kevin Donovan (Kevin, 2012) was the ability to move money over long distances and know it was going to the intended recipient.

2.2.8) The shortcomings of financial institutions

a. The Case of Kenya M-pesa

In March 2007 Safaricom in Kenya decided to expand on a portion of their business model that was proving to be innovative and profitable (Suri, 2011). Safaricom's subscribers were, at the time, purchasing airtime and sending it to other subscribers to pay for goods and services. These transfers that Safaricom decided to formalise the process and named it M-pesa. By 2009, 65% of Kenyan households were now using M-pesa as a means of trade.

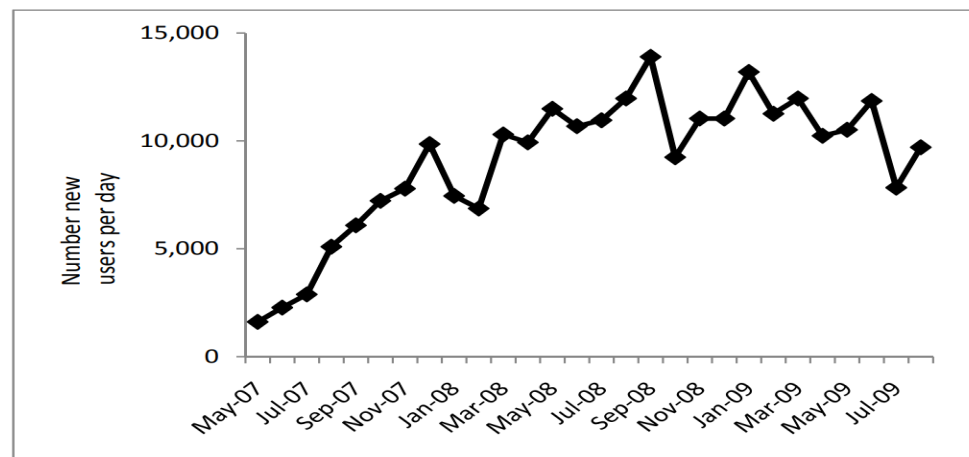


Figure 8: Number of new users of M-pesa per day

Source: (Suri, 2011)

The above table indicates the increase in average number of new registrations per day. July of 2009 had around 7,7 million active users and more than 23 000 agents that assisted to fulfil the function of many money movement. M-pesa success is also rooted in its cost effectiveness. Compared to other available means of sending and receiving cash in Kenya, M-pesa was the lowest cost to consumer. This was the case despite there being differing fees for registered and non- registered members. (Pickens, 2009) stated “ M-PESA eliminates the time and distance needed to move money, and allows for cash flows to penetrate rural areas where cash is difficult to access.” Over and above the ease of cash movement users realised the benefit of the extensive network of users that now existed, and this created new avenues for doing business.

b. The Efficiencies of QQ

Despite starting to pay services, the Tencent application has grown to include an e-commerce platform called “Taobao” (Chui, 2021). This network effect of a mobile money solution within a retail platform is probably the most successful story of mobile money. The marketplace boasts thousands of suppliers and millions of buyers. Much of the success of Taobao lies in the fact that consumer pays for goods

upfront, but the payment is only released when the consumer is happy with their product. Thus, minimising fraud and building consumer trust.

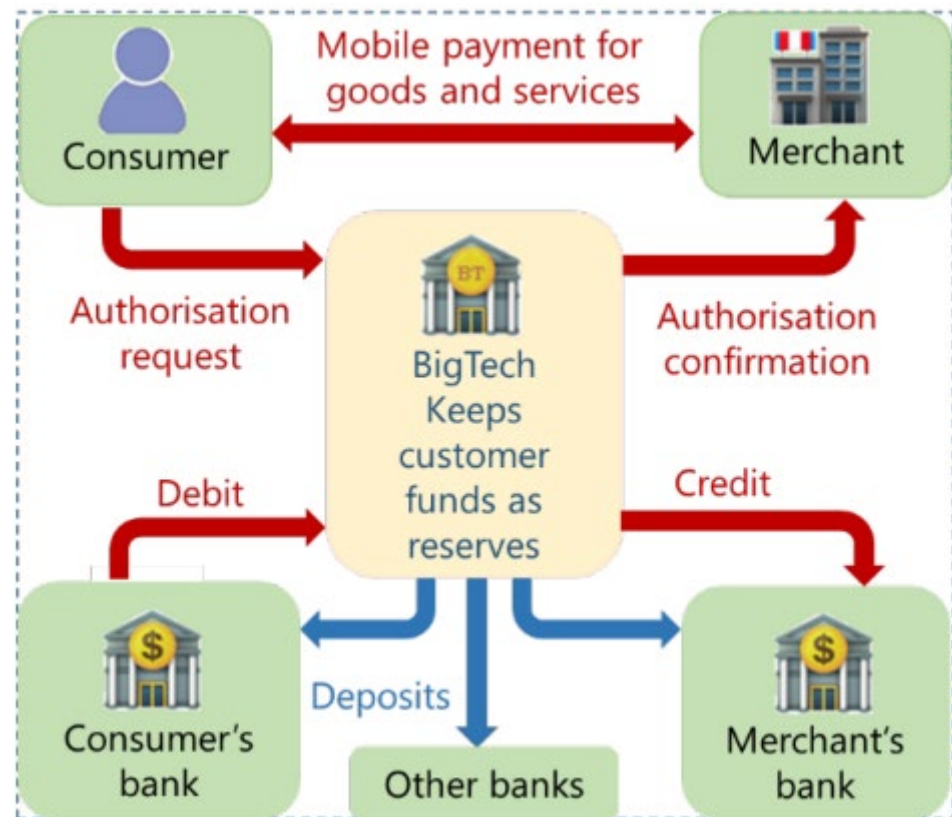


Figure 9: Process flow of electronic money

Source: (Chui, 2021)

The growth of Taobao and QQ was propelled by the Chinese government. At the onset of third generation (3G) technology in China, that allowed faster internet access and the production of richer images and texts. The Chinese government supported mobile phone manufacturers to lower costs to consumers to increase use while supporting mobile infrastructure across the country. In turn advertisers began to use the QQ platform more. By the end of 2015, mobile payments equalled 100 % of GDP (Chui, 2021). Mobile payments also reduced the time it took for sellers to receive their payments. Layered on top of this was the technology of QR codes. This allowed buyers to simply scan in the sellers' details and pay seamlessly. (Chui, 2021)

In conclusion the banking sector is unable to fulfil the needs of low- income individuals. Many factors play a role here, like cost of banking and banks not having tailored product that's suit low-income individuals. The need for financial inclusion is one that benefits the economy greatly. While Mobile Network Operators are still navigating infrastructure, logistical, marketing, and legal changes, the contribution, and benefits of Mobile Banking is evident. Once countries build on the network effects created by mobile money

applications the resulting efficiencies and business opportunities are vast. It is this access to network effects that increase GDP.

The purpose of the literature thus far is to outline:

- The legal framework that needs to be present prior to operators taking on financial services as an offering.
- The various offering that can be available to mobile money users that do not require formal bank account. Such as the ability to pay for goods and services, financial assistance, and to save or invest.
- The literature that speaks to the volume and adoption of mobile users serves to indicate that the mobile money market is growing and has a long-term potential for business growth. The Chinese examples serves as an example on how vast and varied the mobile money application benefits can be. They serve the consumer, supplier and the economy.
- The case study on Kenya and India indicates the low-income individuals scepticism of technological advancements as well as the means that were used to overcome their scepticism. Once this is overcome technology adoption is high and fast.

2.2.9) Management Theories

a. Business Model Canvas

“A business model describes the rationale of how an organization creates, delivers and captures value” (Business Model Generation, 2010)

“An effective way to assess a path to innovation is to combine the classic strength, weakness, opportunities, and threats (SWOT) analysis with the Business Model Canvas (BMC). This allows for a focused assessment and evaluation of an organisations business model and its building blocks (Business Model Generation, 2010, p. 216)

The BMC focuses on the consumer and the changes that the Mobile Network Operator (MNO) will have consider when approaching the market of low-income consumers. It is in-depth and covers both internal and external factors affecting the business. Therefore, the BMC can be the base of the assessment for a working business model.

The Business Model Canvas comprises of nine sections, namely:

1. Key partners or partnerships. In relation to this study. Who can the Mobile Network Operators partner with to drive their application? I believe these could either be the banks who are also under significant pressures to adjust their business model. As seen in this study for example, the branch infrastructure is becoming less relevant to the customers. Should this co-opetition not be feasible, the alternative would be to partner with software and communication companies and not bring the capabilities inhouse. Just use the base of the customer base as an advantage built on strong technologies.

2. Key activities – In relation to this study this may involve marketing. These key activities may have to be reshaped to bring in capabilities that did not exist in the organisation before. For example, a Mobile Network Operator generally is strong in communication systems, while Mobile Money draws them more towards financial services.

3. Key resources – In relation to this study, being a MNO may actually present the biggest strength in the resource of consumer data. Even though this is largely in communication – the level and spend on communication may also be indicative of inclusion into the broader economic activity. Even though the cell phone penetration in South Africa is high and growing with new network connections (GSMA Intelligence Report, 2022). This customer base can be leveraged to learn and ultimately to create better value propositions in future.

4. Cost Structure – in relation to this study. What are the possible costs to be incurred in accessing this new market? One of the biggest costs for any business is the cost of acquiring customers. If MNOs adopted the approach of giving free access to their existing customer base – that would give them a massive advantage and reduce costs as well. Yes, the development costs would still exist, but I believe the potential revenue streams would make the offering financially viable.

5. Value proposition – In relation to this study. Does the consumer view a mobile application offered by MNO a more “valuable” application than e- banking? The formulation of a stronger value proposition by the Mobile Network Operator would be key as there are several factors that continue to make alternatives better than the current offering. Osterwalder et al (2014, p. 42) present the idea that for a value offering to be superior it will have to achieve a fit with the jobs that the customer is trying to do in their lives. Offering pain relievers like making mobile money free of charges may present an enhancement of the value proposition.

In totality building these stronger value propositions may also mean that the company may have to create spin offs or completely brand-new companies as the value proposition may end up being disruptive in nature to the current business model (Christensen, 1997).

6. Customer relationships in relation to this study. How does the MON ensure that consumers will continue usage of the application and the application will become an integral part of their lives?

7. Customer segments- in relation to this study can the MNO service all segments of the market? The theory of disruption according to Christensen (1997) focuses on building a new value proposition for the non-consumer. With this logic I would believe that the future customer segment for Mobile Money would be those customers who either do not have access to banking facilities – which would improve financial inclusion, and those that do have access but are over-served by the current offerings. Not everyone needs access to the most advanced features. In my survey, 67.35% of the respondents either agreed or strongly agreed that if Mobile Money was easier to use, they would use it. Targeting those

customer segments that just need a good enough product may also save the MNOs a lot of money in sophisticated development.

8. Channels- in relation to this study. How will awareness and usage be introduced to the consumer? What channels will MNO take for delivery? Even though the phone and the network are the biggest advantage – there may be a need to look at other channels through established partnerships, for example< retail stores selling airtime could become cash fulfilment centres for Mobile Money.

9. Revenue streams- in relation to this study. What revenue streams can the MNO foresee achieving with this application and is it sustainable?

The Business Model Canvas will clarify a framework for entry for Telecommunications companies on how to enter and service the mobile money consumer. The Model allows the telecommunications company to assess its available capabilities that can service possible users. It also allows for identification what capabilities and infrastructure they do not have, that needs investment so that they can serve their intended markets. For example, do South African telecommunications have the skillsets, infrastructure, finances to create and support a mobile money application?

From the literature mobile money applications require high levels of technological dexterity and safety. Telecommunication companies currently are under serviced in security measures.



Source: Business Model Generation, Alexander Osterwalder and Yves Pigneur, 2010, businessmodelgeneration.com

Figure 10: SWOT Analysis vs Business Model Canvas

Source: (Business Model Generation, 2010, p. 217)

The use of the SWOT analysis can assist the MNO to identify strategies and initiatives to use the strengths to take advantage of opportunities and reduce weaknesses and exposure to threats. This plays fully to the development of different revenue models or revenue streams. For example, in traditional banking – access and transactional fees are the main source of revenue streams. This could be challenged by Mobile Money that may

potentially carry no transactional and access fee but rather have revenue streams from partners that the customer buys from (e.g., marketing fees).

b. Diffusion of Innovation

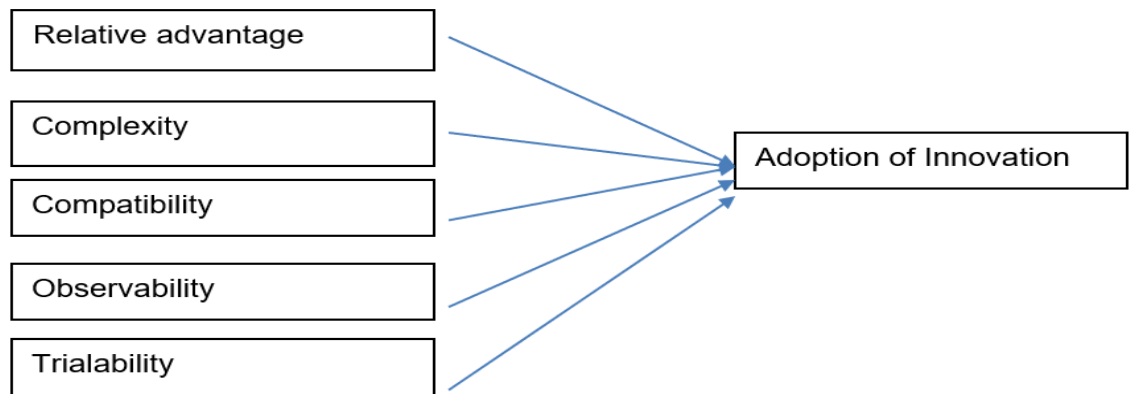


Figure 11: Diffusion of Innovation

Image recreated from (Nur Alam Siddik MD, 2016)

In above diagram Siddik et al use the diffusion theory to examine the adoption and use of information technology. Using the disruptive tool (Nur Alam Siddik MD, 2016, p. 113) (explanation below) the adoption behaviour can be explained and identified:

- i) Relative Advantage relates the perception the consumer of the innovation being better. The better the perception the greater possibility it will be adopted. In relation to the research consumers that have access to financial services through existing mobile phones.
- ii) Compatibility relates to the consumers ability to recognise the need and use within the current set of values and experiences the consumer has.
- iii) Complexity relates to the level of ease in understanding the innovation. MNO operators need to ensure that the language and education level is considered in design of the application.
- iv) Trialability relates to the consumers ability to test the innovation. However, there is no positive correlation between the trialability and the adoption of the innovation.
- v) Observability relates to the ability to observe the results on an innovation. The less observable the innovation result is the less likely the adoption. In this study the observability is found in the ability to have access to financial services.

Siddik et al., state that in conjunction to identifying the probability of adoption of innovation the research concludes that the “technology acceptance model” and “the theory of planned behaviour” must be combined into the theory to identify all factors that consumer will consider in using and choosing a mobile banking application. Factors such

as “perceived risk”, “cell phone experience”, “banking need”, perceived financial cost”. (Nur Alam Siddik MD, 2016)

The diffusion of innovation theory if used to improve financial inclusion could lead to new opportunities especially for countries in Africa. This is consistent with the view expressed by Christensen in the Prosperity Paradox, (2019) that provides insightful theories that can lift countries out of poverty. The increase of cell phone penetration in the African continent shows all the signs of a technology that creates a relative advantage and has been adopted widely.

C. Disruptive Innovation

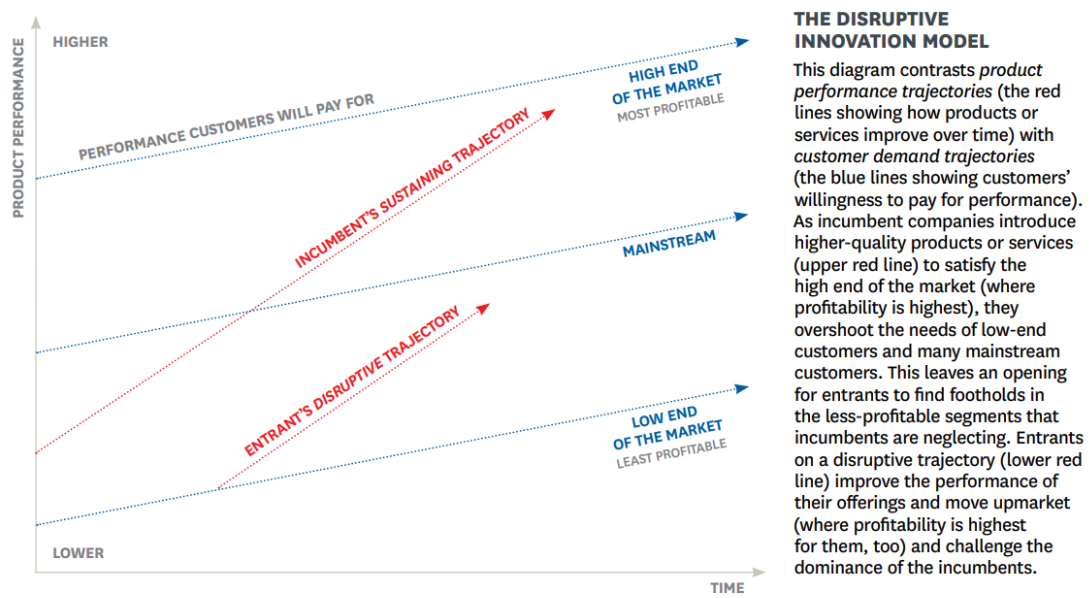


Figure 11: Disruptive Innovation (Clayton M. Christensen, 2015)

Disruptive Innovation is when smaller companies with lesser resources, take on big companies that are established. They generally fulfil the needs of consumers that the more established firms overlook. They target their specific requirements and offer aligned services. Some traits that disruptive innovation is that they start at the low end or in new markets and they only service mainstream consumers when the quality level allows them to. (Clayton M. Christensen, 2015)

Thus, for the introduction and adoption of Mobile money, Mobile Network Operators can use the above management theories to adequately understand the path to create a disruption and how new technological advancements can be implemented.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

“Quantitative research is the numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena that those observations reflect. (Sukamolson, Fundamentals of quantitative research, 2007) . As per Sukamolson (Sukamolson, Fundamentals of quantitative research, 2007) quantitative research can be used to assess respondents' opinions or sentiments on a topic or express the state of the phenomenon as it exists in society. For this research paper quantitative research was chosen to determine what factors would make low-income individuals more inclined to use mobile money applications. Also, to determine the level of awareness of Mobile money applications amongst low-income individuals that used these applications. Lastly, to determine what factors hinder the use of use mobile money applications.

(Lewin, 2005) Quantitative research assigns numbers to attributes for a “case” to measure the factual number of a variable or the attitudes and opinions of that variable. The choice of quantitative research was to be able to collate the opinions of users as to the familiarity and usage of the application. The research uses cross functional design. (Lewin, 2005) states that cross sectional data assists in finding the relationship between variables or patterns of association. In the research the size of the sample set and associated averages are used to explain the relationship between variable and behaviours that exist.

3.2 Research Strategy and Design

In this section the I outline the approach that was used in conducting research. So that the problem statement in the literature can be investigated.

Mobile money applications are in different phases of implementation in different countries. This is so, as each country has its own set of challenges, structures, and even cultural influences. Development of a mobile Money application must consider all the pre mentioned factors as well several others i.e market readiness, financial gain, sustainability etc. There are several types of research design. For example, custom surveys, trend analysis or Self- administered questionnaires. (Sukamolson, Fundamentals of quantitative research, 2007).

The research method used is an online survey. “Survey research uses scientific sampling and questionnaire design to measure characteristics of the population with statistical precision” (Sukamolson, Fundamentals of quantitative research, 2007). In this paper the researcher will use questionnaires to carry out the survey. As per Sukamolson the pros are that they are inexpensive, do not require the interviewer and the respondents maintain their anonymity. The cons are responses are low, may take time to get responses, may not be exposed to the relevant audience and tend to focus on small geographical spaces.

This survey was sent online as well as via WhatsApp to all interested individuals. The survey did have a qualifying question on income to ensure that inferences on low-income individuals can be made.

3.3 Research procedure and methods

“Quantitative research and/or questions are searching for quantities in something and to establish research numerically” (Sukamolson, Fundamentals of quantitative research, 2007) The researcher used questionnaires to attain public opinion. The questionnaire will be anonymous. The participant will consent to participation prior to answering the questionnaire. This was distributed via e-mail and WhatsApp as it is a link to the questionnaire. Time to complete is estimated between 3 to 5 minutes. The questionnaire. Data will be store offline on a private password protected computer. The data will be collected anonymously. After a year the data will be deleted.

3.3.1 Population and sampling

a) Target population

The targeted audience for the questionnaire will be subject based. The researcher will aim to target individuals in jobs that are entry level or service level. To ascertain their view and experiences on mobile applications.

b) Inferences reached from the sample group will be used to make general assumptions about users.

3.4 Data analysis

Analysis on this topic was done by creating correlations between questions posed to the respondents. Questions around having a bank account, income and bank usage that could lead to an inference about low income and having a bank account.

Basic statistical analysis will be formed to determine the validity of the questionnaire as well any correlation between questions in the survey.

Use of excel table that look at correlated questions help develop the argument for correlation. The excel tables will explore the average and number of respondents per questions. As well as group together relevant questions so a conclusion can be reached. In the findings section I discuss these relations and possible conclusions that can be made.

3.5 Research reliability and validity measures

To ensure that the data collected is reliable the researcher will be employing verification strategies (Morse, Barrett, Mayan, Olson, & Spiers, 2002). These consist of “methodological coherence is to ensure congruence between the research question and the components of the method. The interdependence of qualitative research demands that the question match the method, which matches the data and the analytic procedures.” (Morse, Barrett, Mayan, Olson, & Spiers, 2002, p. 18)

“Secondly, the sample must be appropriate, consisting of participants who best represent or have knowledge of the research topic” (Morse, Barrett, Mayan, Olson, & Spiers, 2002, p. 18). Hence the questions were aimed at service and domestic workers who are on a lower income.

“Third, collecting and analysing data concurrently forms a mutual interaction between what is known and what one needs to know” (Morse, Barrett, Mayan, Olson, & Spiers, 2002, p. 18). Knowing the possible income band led to the choice in sample.

3.6 Research limitations

a. Technical limitations

The research will be limited to the questionnaire respondents. While effort was made to reach low-income individuals, anyone with access can answer the questionnaire. All correspondence will be kept on a laptop, with no names and identifiable characteristics. Some questions of a personal nature have the “prefer not to say” option. This allows the respondent to refrain from answering questions. The study will also rely on the premise that the questions are simple enough that the respondent knows the meaning and the intention of the question.

3.7 Ethical considerations

a. Ethical considerations when collecting data

The researcher, university details and the purpose of the study were all presented to the respondent prior to engaging in the study. Consent will be obtained from each participant, on the front of each question sheet. While all efforts will be made to ensure there is no bias, this is a consideration. Confidentiality and anonymity will be maintained as all participants will not need to share their name or titles. If they choose to they may even choose to not disclose their gender.

CHAPTER FOUR: PRESENTATION OF RESULTS OF THE STUDY

4.1 INTRODUCTION

This study was carried out on an online survey. The questionnaire is attached in the Appendix for consideration. The questions centred around the awareness and knowledge of mobile money applications.

The presentation of these results will fall into four categories. Firstly, the demographics, secondly their access to formal banking and frequency, thirdly the use on their banking regardless of having a bank account or not and lastly their propensity to use a mobile banking application.

4.2 DEMOGRAPHIC INFORMATION

The researcher looked to make an inference about the population based on the outcomes of this research. The sample of this research was taken in South Africa in the Western suburbs of Johannesburg. The researchers' respondents are mainly from this area. While a generalization may try to be made, the extent to which the generalization expands may not be large. As the sample size is smaller than expected.

A) Age and gender of respondents

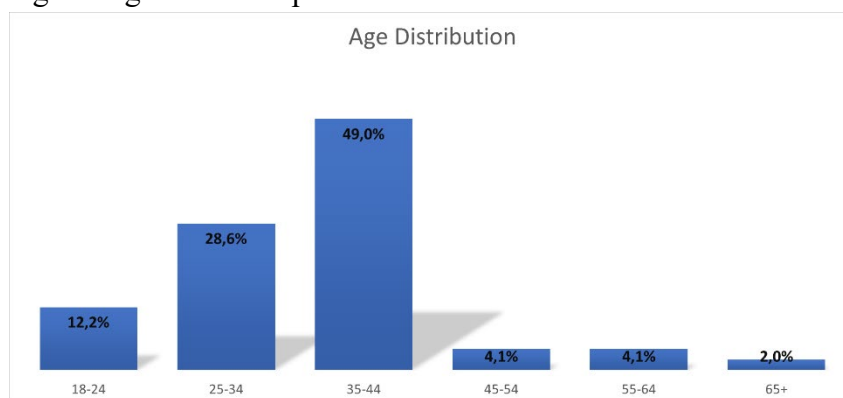


Figure 12: Age and gender of survey respondents

The majority of respondents are between 25- 45 – 77,6%. This was positive as these individuals make up the majority of economically active individuals in the GDP.

Below are the gender demographics for the same group.

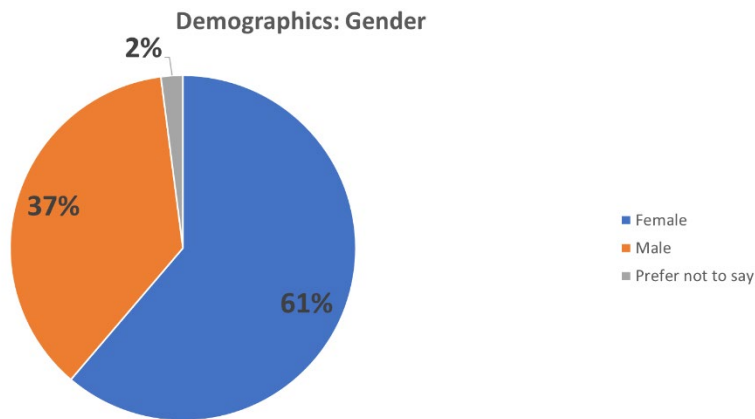


Figure 13: Gender of survey respondents

B) Gender of respondents

Majority of respondents were women 61%, 37% were men and only 2% were not willing to respond. Each recipient was asked if he/she has a bank account. This question exists to quantify how many people have a bank account. The assumption is that bank account holder may not know of mobile banking applications due to their financial needs being met.

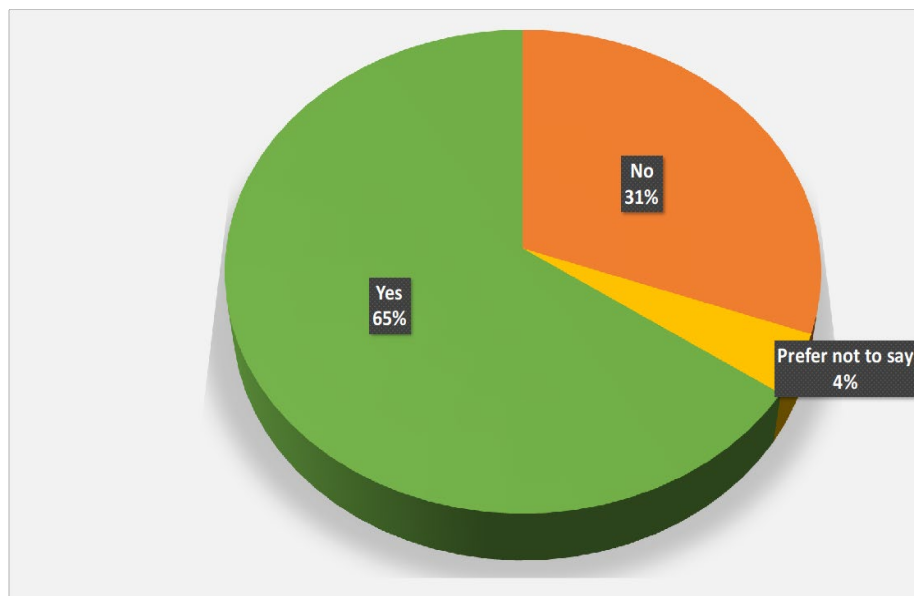


Figure 14: Responses: Do you have a bank account?

Of the respondents 65% said yes and only 31% said no.

C) Income bands of respondents

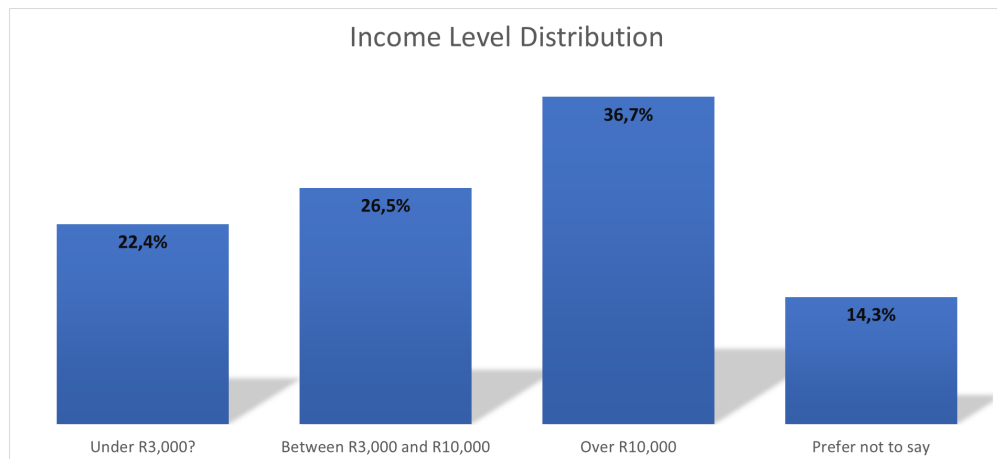


Figure 15: Income distribution of respondents

The result of asking how much respondents earns, is displayed by the income level distribution. 48,9% of the respondents earn under R10,000

D) Respose to having a bank account

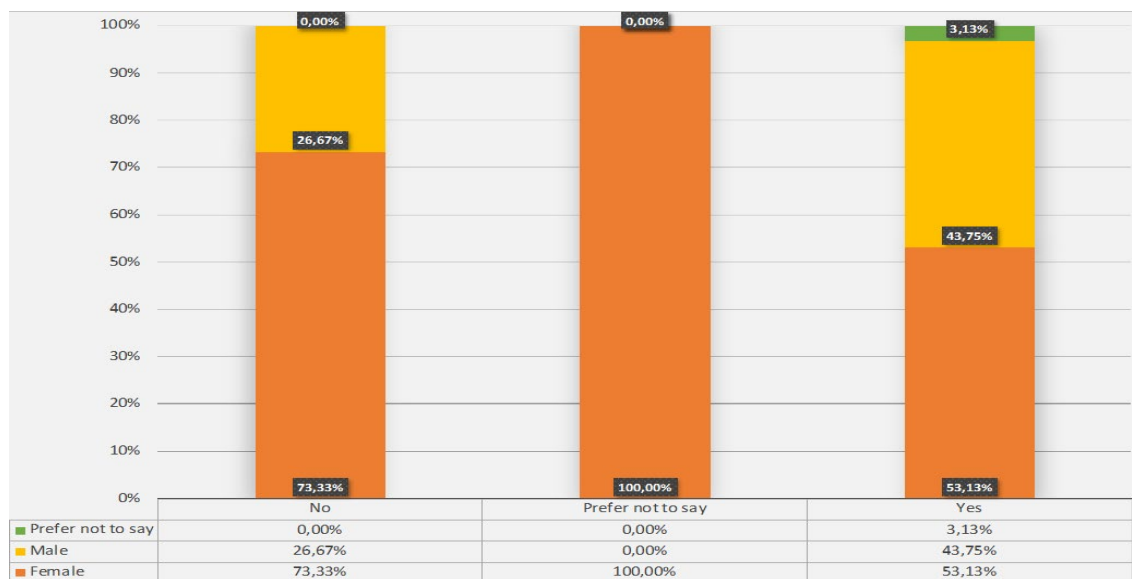


Figure 16: Stack chart – Do you have a bank account by gender

Continuing the number of respondents that have bank accounts, those that responded no, which is 31% if respondents, 73% of them were female.

E) Income band Gender analysis

Table 1: Income level distribution by gender (Count)

Row Labels	Between R3,000 and R10,000	Over R10,000	Prefer not to say	Under R3,000?	Grand Total
Female	9	10	4	7	30
Male	4	8	2	4	18
Prefer not to say			1		1
Grand Total	13	18	7	11	49

In the above table the researcher notes that the great majority of respondents that earn under R10 000 are women. A total of 16 of the 24 respondents that ear under R 10 000 a month. This means that females bear more of the burden of not having access to financial assistance.

Kaur and Kapuria (2020) have examined the determinants of accessing institutional and non-institutional finance across male- and female-headed households in rural India. The study finds that female-headed households have a lower probability of accessing institutional finance and a higher probability of accessing non-institutional finance. (Sahu, 2020)

F) Access to Formal Banking

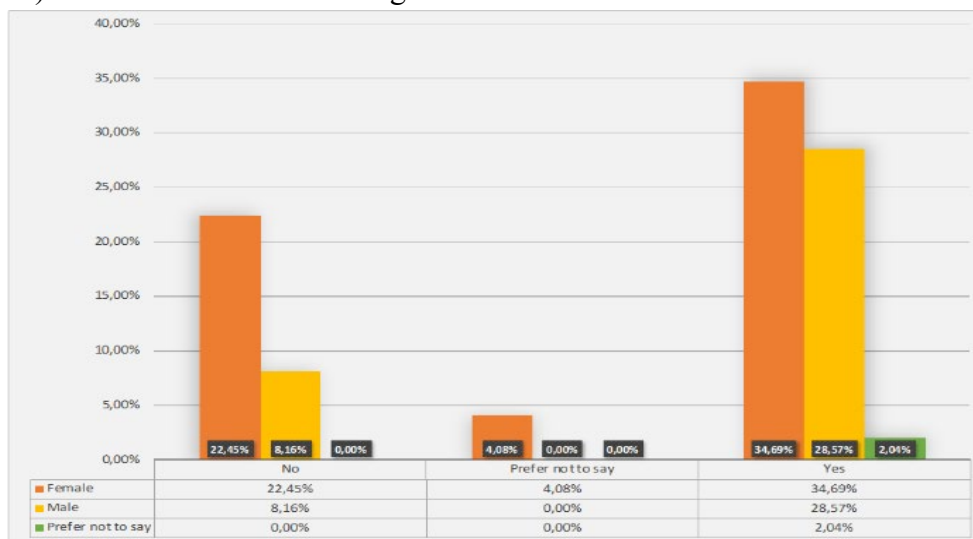


Figure 17: Question – Do you have a bank account (by gender)

The respondent representation above shows that majority of respondents have a formal bank account. Below is the graph of those respondents corresponding ages.

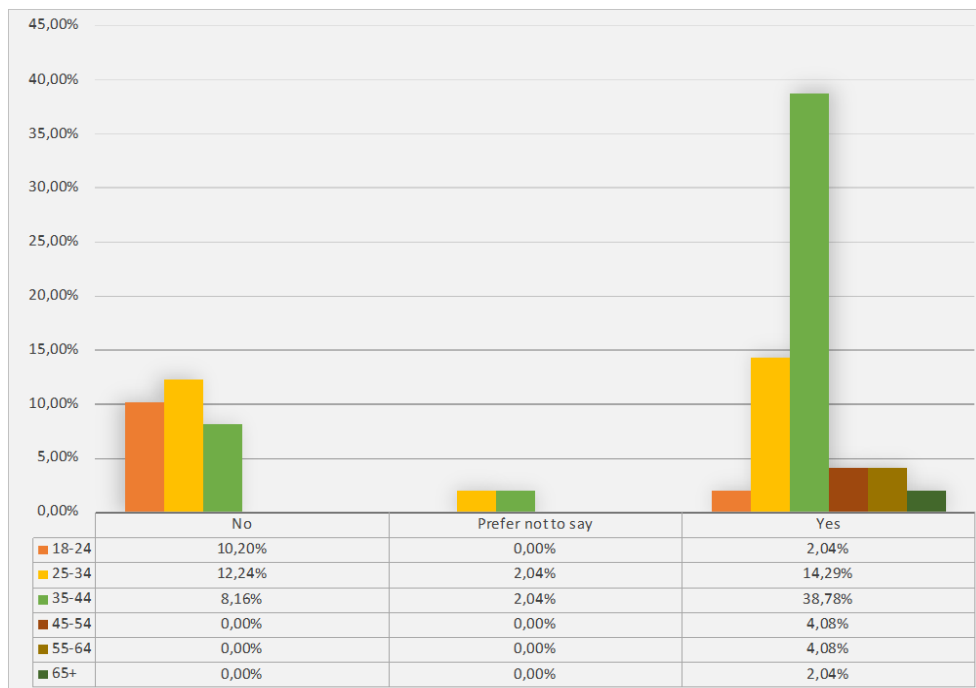


Figure 18: Age distribution to question: Do you have a bank account

Age distribution of those answered do you have a bank account. Respondents that did not have bank accounts (no) were mainly between 18 and 34. Those respondents that had bank accounts (yes) were mainly between 25 and 45. It's important to note that no respondent over 45 did not have a bank account.

The following graphs will indicate the responses to: “how often do you access the branch”. This question is there to ascertain how often respondents would use the services within the branch, such as physical deposits, large sum withdrawals, teller assistance and branch manager assistance. The question does not specify the reason respondents would enter the branch. The frequency is calculated to measure the use of banking facilities for current users. The assumption is that there is no longer a great dependency on brick-and-mortar branches as technology moves users online and on banking applications.

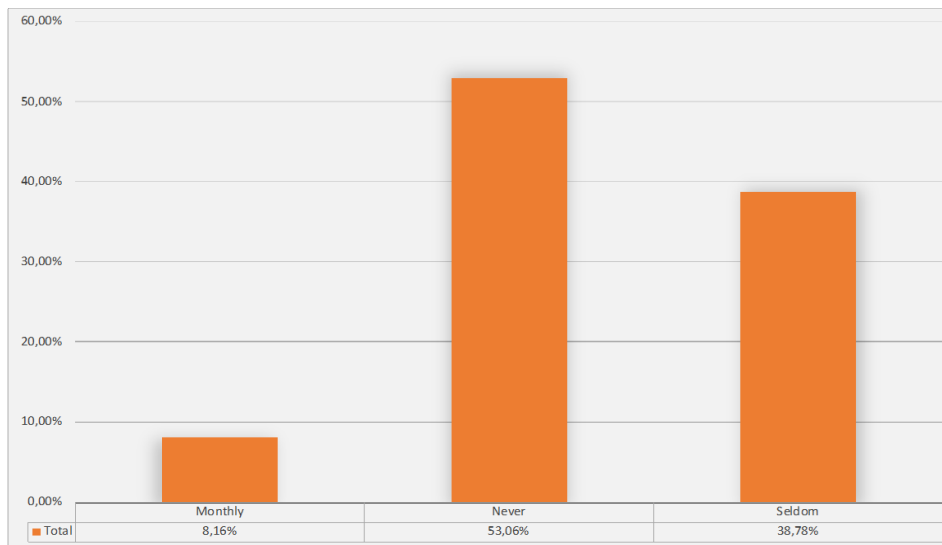


Figure 19: Question – how often do you access the bank branch?

91,84 % of respondents seldom to never walked into the branch of a bank. This question was part of a cluster of interdependent questions. How often does the respondent use i) ATM, ii) Shops/ Tills, iii) Telephone Banking iv)Internet banking v)Banking App vi)SMS banking vii)Mobile Money App. Depending on the choice the researcher needed to determine what is currently the most used form of money management that respondents used. Also, if mobile banking was being used by respondents. The frequency from the above question would be supported by the outcome of the following question in the survey.

The question following the previous question was a clustered set of questions that explored the circumstances under which a mobile banking application would be incorporated into respondent's methods of money management.

Questions such as, the current use of financial services, was used to determine if the majority of respondents used mobile banking applications for *transacting, saving/investing, borrowing or insuring*. The correlation between having a banking account, the use of that account and their knowledge of mobile banking will be determined.

Respondents that did not have bank accounts and access to mobile banking were asked "why they do not possess a bank account". Below you will note that 15 respondents did not have a bank account. Of the 15 the majority did not have the relevant documentation or assumed they would not afford the cost associated with formal banking. As South Africa has an influx of refugees and illegal immigrants seeking asylum and employment, many are unable to obtain a bank account. Formal documentation would require individuals to register as foreigners with passport and these individuals would need to get permits. Permits limit the time that foreign nationals can be in a country. This would disrupt their ability to carry out their duties at the place of employment.

G) What prevents respondents having a bank account

Table 2: Question : Why do not have a bank account

Row Labels	Count of Bank Account
No	15
Prefer not to say	2
Yes	32
Grand Total	49
Row Labels	Count of Reasons
Availability of documentation	4
Availability of documentation, Availability of time to open the account, Costs related	1
Availability of documentation, Availability of time to open the account, Costs related	1
Availability of documentation, Awareness of banking products or options	1
Availability of documentation, Costs related to opening and having a bank account	2
Availability of documentation, Costs related to opening and having a bank account, /	3
Costs related to opening and having a bank account	3
(blank)	
Grand Total	15

4.3 USE OF BANKING

In this section its important to define what the researcher views as the use of banking. The use of banking would include the use of ATMs, internal branch services, the use of store till points, Internet banking applications, SMS or USSD functions, telephone banking or Mobile Money applications.

Table 3 How Often do you use Internet Banking?

	Daily	Monthly	Never	Seldom	Weekly	Grand Total	Corresp.%
Count of How often do you use the following? [Store or Shop till]	5	7	5	17	15	49	
Count of How often do you use the following? [Telephone banking]	1	5	29	10	4	49	
Count of How often do you use the following? [Internet banking]	5	6	21	7	10	49	43%
Count of How often do you use the following? [Banking App]2	8	5	17	5	14	49	
Count of How often do you use the following? [SMS Banking]	3	1	35	7	3	49	
Count of How often do you use the following? [Mobile Money (non-banks e.g. MTN/ Vodacom/ Cell C)]	2	3	37	5	2	49	
Count of How often do you use the following? [Internet banking]							
Row Labels	Daily	Monthly	Never	Seldom	Weekly	Grand Total	
No			15			15	71%
Prefer not to say			1	1		2	5%
Yes	5	6	5	6	10	32	24%
Grand Total	5	6	21	7	10	49	100%

The above shows the number of people that do not (never) use internet banking. They comprise of 21 or 49% of respondents. Of the 21 respondents 15 do not have bank accounts. This may denote that due to not having a bank account the respondents do not have the need for internet banking.

Similarly, 37 of the 49 respondents have never used mobile banking. In this case the number of respondents that have bank accounts is larger than those who do not. Those that have bank accounts are 50% more than those who do not. However, it does not seem relevant if respondents have or do not have an account. The 37 or 75,5% of respondents do not use mobile money applications.

Table 4 How often do you use Mobile Money?

	Daily	Monthly	Never	Seldom	Weekly	Grand Total	Corresp.%
Count of How often do you use the following? [Store or Shop till]	5	7	5	17	15	49	
Count of How often do you use the following? [Telephone banking]	1	5	29	10	4	49	
Count of How often do you use the following? [Internet banking]	5	6	21	7	10	49	
Count of How often do you use the following? [Banking App]2	8	5	17	5	14	49	
Count of How often do you use the following? [SMS Banking]	3	1	35	7	3	49	
Count of How often do you use the following? [Mobile Money (non-banks e.g. MTN/ Vodacom/ Cell C)]	2	3	37	5	2	49	76%
Count of How often do you use the following? [Mobile Money (non-banks e.g. MTN/ Vodacom/ Cell C)]	Column Labels						
Row Labels	Daily	Monthly	Never	Seldom	Weekly	Grand Total	
No			1	14		15	38%
Prefer not to say				2		2	5%
Yes	2	2	21	5	2	32	57%
Grand Total	2	3	37	5	2	49	100%

Table 5 What would encourage you to use Mobile Money Applications

How often do you use the following? [Mobile Money (non-banks e.g. MTN/ Vodacom/ Cell C)]	(All)				
Row Labels	.. [If it was free.]	... [If I knew more about it.]	... [If it was easy to use.]	.. [If it did not require data.]	... [If it was integrated with an App I already use (like social media apps)]
No	15	15	15	15	15
Prefer not to say	2	2	2	2	2
Yes	32	32	32	32	32
Grand Total	49	49	49	49	49

In the table above table it indicates that 32 of the 49 recipients would use mobile money applications if the applications were free, easy to use, did not require data when accessed and if they were integrated into current social media applications.

4.5 RESEARCH RELIABILITY AND VALIDITY

The following four factors were analysed:

- Do you have a Bank account?
- The gender, income, and highest education level

Reliability

Scale: ALL VARIABLES

Case Processing Summary		N	%
Cases	Valid	49	100,0
	Excluded ^a	0	,0
	Total	49	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics	
Cronbach's Alpha	N of Items
,592	4

The Cronbach for these values sits right at the beginning of an acceptable Cronbach Alpha where $\alpha = 0.592 \sim 0.6$. This indicates that correlation between these items is loosely correlated despite being positive.

CHAPTER FIVE: FINDINGS OF THE STUDY, CONCLUSION AND RECCOMENDATIONS

5.1 Summary of Findings

The summary of the finding was generated around the main themes and sub themes in this paper. In his paper it was found that most users had *no knowledge of mobile banking applications* offered by mobile network operators. However, when questioned around the appetite to use mobile money applications in place of banking applications many respondents strongly agreed that they would be inclined to use the application.

Respondents were motivated by the prospect of having access to service providers so they may transact directly with them. These being utilities suppliers, retailers, entertainment, and most importantly other users within the mobile money network.

I found that several respondents did not have formal banking due to the *costs associated* with opening a bank account and the related cost of transacting fees that associate with having a bank account. Others cited the cost of data to access banking applications and the complexity of banking applications. While other respondents cited their need for banking access services that are available within banking applications; these respondents did not have the current paperwork or formal documentation that is required to open a bank account.

Similarly in my investigation from the data presented above it was noted that most users that did not have a bank account did use banks services and only used the ATM for withdrawing funds transferred to them via cardless transactions. Beyond this they had no other interactions such as Internet banking, telephone banking, SMS banking etc. This made me aware that the limited interaction that these users have with the banks because they cannot open bank accounts due to *lack of formal documentation* means they have limited access to financial services. As a result, these individuals are unable to transact on day to day need thus saving, investing, borrowing are unavailable to them.

For those respondents that have bank accounts and earn above the maximum denoted in the questionnaire, which is R10,000. It is noted that these respondents also felt that they would use mobile many applications more if they were *made more aware* of the potential benefits that exist outside transacting and saving.

In my findings an analysis it is evident that 30 out of 49 respondents are female of which out of these 30 respondents more than 50% which is 16 respondents and under R3000 a month. Inclusive in that 91.8% off the 30 respondents do not have a bank account. The only interaction that they have is the withdrawal of cash or transference of cash through the ATM system at banks.

In the overall study 76% of respondents did not have knowledge and have never used a mobile banking application. Most respondents agreed that if the application *was free and easy to use* as well as integrated into a current social media application that they have they are more likely to use the mobile money application. As is the case in my literature review after success of QQ in China. QQ is a mobile money application within but TaoBao retail services application.

5.2 Recommendations

-Preload mobile money application onto cellular phones. Ensure that mobile money applications are a pre-loaded application like Whatsapp or Google. This ease of access is one less impediment for the user in starting to use the application.

-Ensure that the application is zero- rated. This ensure that the use does not have to pay to access or use the application. All revenue will be derived from transactions through the application for both the Mobile Network Operator and the suppliers.

- Onboard and partner with a vast number of service providers. This will ensure that suers of the application are able to find a variety of suppliers they can transact with. Icreasing the usage and reach of the application. Consumers will be able to ffulfil many of the needs in one place. The application can become a central marketplace for all suppliers. Much like QQ in China the Mobile Network operators that administer that application can generate a secondary atream of revenue from marketing on their platform. The greater number of suppliers the greater the reach of the audience. Opening suppliers and consumers to new market opportunities.

-Create above the line and below the lone marketing for the various consumers in the market. Advertising focused on awareness and usage. Brand Building is vital at the onset. As other entrants and existing players (banks) will aim to imitate and claim market share.

5.3 Conclusion

In conclusion that is my finding that low-income individuals need these basic criteria to begin to use mobile money applications. They need to be aware of their existence of application, the application should be free and the application needs to have many users/ suppliers to enjoy network effects.

Mobile Network operators are the most suited to gathering a large number of users. Because, unlike banks, mobile network operators require less formal documentation that banks do. The mobile telephone number becomes the bank account number or identifier for the client. As per the literature Mobile Network operators also collect vast amounts of behavioural data on users through cell phones. This can be tailored to offer the correct supplier suggestions to users.

can assist in all of the above aspects.Also, since the study I have conducted indicates that most of the respondents said are female and earns under R3000. This places them squarely in the category of low-income individuals. This coupled with the literature from Kenya in my literature review proves that females suffer the greater burden of financial exclusion. However, females make up the great majority at the demographic of people in most African countries.

5.4 Suggestion for further study

Since the study I have conducted indicates that most of the respondents said are female and earns under R3000. This places women squarely in the category of low-income individuals. This coupled with the literature from Kenya in my literature review proves that females suffer the greater burden of financial exclusion than any other sub group of individuals. However, females make up the great majority at the demographic of people in most African countries.

My suggestion would therefore be to create awareness around mobile money applications to female individuals and offer incentives around downloading and usage to females. Further research can be done into the effects on GDP growth contributions and remittances once a system for mobile money applications is up and running in a country.

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Table 6: Consistency matrix

Problem or scope of project stated here					
Sub-problem	Literature Review	Hypotheses or propositions or questions	Source of data	Type of data	Analysis
Determine the contribution that MNO can have increasing financial inclusion and hence economic growth	(Mutsa Chironga, 2017)	H1 : Mobile network Operators processes increase the use of digital financial services	Questionnaire		Analysis of responses in a consistent and structured manner
What makes mobile network operators' financial digital applications more suitable and accessible than the banks mobile applications	(Nur Alam Siddik MD, 2016)	H2: What unique features attracts users to mobile money applications created by MNO's versus other available offers	Questionnaire		Analysis of responses in a consistent and structured manner
suggest ways to improve access and usage to mobile financial services offered by mobile network operators.	(Ahmad, Green, & Jiang, 2020)	H3: what technological advancements and information analysis do MNOs have and use that will attract low income users to mobile banking	Questionnaire		Analysis of responses in a consistent and structured manner

APPENDIX

Questionnaire

Mobile money for financial inclusion

Thank you for taking part in this survey.

I am a Master of Business Administration student at the University of Witwatersrand. As part of my studies, I am conducting research titled "Mobile Money as a driver of financial inclusion". I would like to invite you to voluntarily participate in this online survey which will take an average of 3 - 5 minutes of your time.

The data collected will be used for research and academic purposes only. Personal information of the participants will not be collected and used in this study. The researcher will ensure confidentiality and anonymity of the participants.

As a participant you can choose to withdraw from the study, and nothing will be held against you. Your participation or non-participation in this study will not pose any risk or loss to you.

The research was approved by the University of Witwatersrand Research Ethics Committee (Non-Medical), Protocol Number WBS/(Awaiting Code) and will adhere to the University's strict guide in conducting research. If you have any concerns regarding the ethical procedures of this study, you can contact the University of Witwatersrand Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email HREC non-medical@wits.ac.za. Should you require further details regarding the study, please contact me.

Yours sincerely,
Researcher: Syilina Simelane Email: 2372446@students.wits.ac.za
Supervisor: Dr Lumkile Mondli Email: lumkile.mondli@wits.ac.za

By completing and submitting this questionnaire it means you consent to voluntarily participate in the study.

 bsimelane@gmail.com (not shared) [Switch account](#) 

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Mobile money for financial inclusion

 bsimelane@gmail.com (not shared) [Switch account](#)



* Required

Do you have a bank account? *

- ☐ Yes
- ☐ No
- ☐ Prefer not to say

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What do you believe mostly prevents you or someone else from having a bank account? (Please select all applicable options)

- ☐ Availability of documentation
- ☐ Availability of time to open the account
- ☐ Costs related to opening and having a bank account
- ☐ Awareness of banking products or options
- ☐ Choosing not to have a bank account
- ☐ Do not have a need for a bank account

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How often do you use the following? *

	Never	Seldom	Monthly	Weekly	Daily
Bank branch	☐	☐	☐	☐	☐
ATM	☐	☐	☐	☐	☐
Store or Shop till	☐	☐	☐	☐	☐
Telephone banking	☐	☐	☐	☐	☐
Internet banking	☐	☐	☐	☐	☐
Banking App	☐	☐	☐	☐	☐
SMS Banking	☐	☐	☐	☐	☐
Mobile Money (non-banks e.g. MTN/ Vodacom/ Cell C)	☐	☐	☐	☐	☐

What services do you use when accessing banking and financial services? *
(Please tick all applicable)

- ☐ Transacting (Receiving money and making payments)
- ☐ Insurance
- ☐ Borrowing
- ☐ Saving or Investment

Do you believe you would use Mobile Money (money apps by companies like MTN * and Vodacom) or use it more ...

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
If it was free.	☐	☐	☐	☐	☐
If I knew more about it.	☐	☐	☐	☐	☐
If it was easy to use.	☐	☐	☐	☐	☐
If it did not require data.	☐	☐	☐	☐	☐
If it was integrated with an App I already use (like social media apps)	☐	☐	☐	☐	☐

Yor gender? *

- ☐ Female
- ☐ Male
- ☐ Prefer not to say
- ☐ Other: _____

Your age? *

- ☐ under 18
- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-64
- ☐ 65+

Your highest level of education? *

- ☐ No formal education
- ☐ Some basic education
- ☐ Matric
- ☐ Post-matric certificate or diploma
- ☐ Undergraduate degree
- ☐ Postgraduate degree
- ☐ Prefer not to say

Your monthly income range? *

- ☐ Under R3,000?
- ☐ Between R3,000 and R10,000
- ☐ Over R10,000
- ☐ Prefer not to say

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