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Impact assessment of mobile money systems on the informal taxi sector in Cape Town

A research report submitted by

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ABSTRACT

Context

The purpose of this research was to assess the potential impact of MTN MobileMoney and Vodacom M-Pesa services on the informal taxi sector in Cape Town, South Africa.

The research intended to assess whether there was any impact of MTN MobileMoney and Vodacom M-Pesa mobile money systems on the informal taxi sector, as well as to determine the effect on business in relation to the role of banking in business.

The method of data collection

A questionnaire administered to respondents in the informal taxi sector in Cape Town, was used as a basis for the study. The sample comprised of twenty-five respondents and each respondent was requested to answer questions based on their current business operation, the banking practice used and opinions related to the use of MTN MobileMoney and Vodacom M-Pesa mobile money systems within their business.

Key Findings

MTN MobileMoney as well as Vodacom M-Pesa mobile money systems have had a small conceivably insignificant impact on the informal taxi sector. There is limited transfer of money between users in exchange for goods or services, as identified through the research conducted within the informal taxi industry.

From evidence gathered and observations noted it can be concluded that MTN MobileMoney and Vodacom M-Pesa mobile money systems are too costly for the consumer to transact on a frequent basis and on small payment values. However mobile money is willingly accepted as forms of payment for a taxi fare, by the taxi owner, although once received the taxi owner in receipt of the funds predominantly transfers money between users who have relations with each other as well as purchasing airtime.

Key Message

There is willingness to accept MTN MobileMoney and Vodacom M-Pesa as forms of payment and thus mobile telephony companies should continue to find new and innovative ways to turn the mobile phone into a tool for accessing basic banking services.

The banking industry will certainly need an improved understanding of people's needs, current adoption and usage patterns of the informal taxi sector and develop products or mobile payment systems that engage with and meets the informal taxi sector's needs.

Mobile money systems could provide a platform that could potentially be leveraged to service the financial needs of the informal taxi sector. In addition considering that two million passengers in within Cape Town and sixteen million passengers within South Africa use the taxi industry daily, if successful it has the ability to enable and catalyse the development of mobile commerce across multiple sectors for both the high income earners as well as the bottom of the pyramid.

DECLARATION

I, Ahlben Phillipus, 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 at the University of Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.



_____

Ahlben Phillipus

Signed at Cape Town, South Africa on the 12th day of August 2013

DEDICATION

In dedication to my father, William Phillipus, who demonstrated selflessness in his conviction for the need to educate and achieve.

ACKNOWLEDGEMENTS

I would like to acknowledge my supervisor who allowed me the opportunity to freely express my ideas while sharing his invaluable insight.

To my wife for all her support and understanding during the late nights and long days, time that was ours, you willingly sacrificed.

The taxi owners and drivers operating in Retreat, Mitchells Plain, Wynberg, Lotus River, Grassy Park, Hanover Park, Parkwood and surrounding areas on the Cape Flats, not forgetting individuals directly involved in the taxi sector, for your time and knowledge that enabled me to complete this report.

Most importantly to God and my family, for providing me with this opportunity and guiding me through its completion.

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1 INTRODUCTION

1.1 Purpose of the study

The purpose of this research was to examine and assess the potential impact of the two most dominant mobile money transfer systems, MTN MobileMoney and Vodacom M-Pesa, on the informal taxi sector in Cape Town, South Africa.

1.2 Context of the study

Cash still dominates as a form of payment in informal economies, but there are new developing forms of payment options available. Within emerging markets, specifically economies with a heavy focus on resources and construction, transfer of funds contribute significantly to that country's gross domestic product as labourers migrate between countries in the hope of finding employment, while still maintaining a financial supporting relationship with their families in their home countries (Donner and Tellez 2008).

With mobile phones now in the hands of billions including those at even the lowest income levels, the use of mobile telephones to deliver basic financial services to the unbanked population represents an unmatched opportunity to bring unprecedented numbers into the formal banking system (Bilodeau, Ehrbeck, Goss, Maxima, Hoffman, Krepp et al 2011). The result has been that the individuals have been utilising mobile banking for various services including payment of bills, movement of cash to different people, and payment of basic everyday items (Greenwood 2009).

MTN and Vodacom are the leading providers of mobile communications services in South Africa, offering cellular network access as well as business solutions relating to voice communications, data communications and data storage. South Africa's population is estimated at fifty-one million people (The World Bank 2011) with a SIM penetration of 132% (Vodacom 2012). The customer base of MTN and Vodacom are twenty-two million (MTN 2011) and twenty-nine million (Vodacom 2012) respectively. The South African cellular network market space is saturated with voice communication, and the next phase

of growth for both MTN and Vodacom is to achieve greater penetration of data content and auxiliary services of which mobile money would form part of (MTN 2011).

In SA, 36% of the people are unbanked, about one third of this population aren't just unbanked, but previously banked (Laferla and Moore 2011). This is a critical indictment of the local banking sector, both the high fees and conservative regulation. It is expensive for service providers to collect and disburse small amounts of cash using the proprietary physical infrastructure of traditional banking models, especially in remote places. Traditional banks therefore struggle to offer products and services that suit the needs of the poor (Bilodeau et al 2011).

A series of attempts at providing mobile payment solutions for existing bank customers and the millions of unbanked people in South Africa have been initiated, however, to date, there hasn't been any success on the scale of Safaricom's M-Pesa model in Kenya or MTN's MobileMoney model in Uganda. Safaricom is 40% owned by Vodafone.

Vodacom's mobile money transfer solution, M-Pesa, was introduced to the South African mobile market in 2010 as an alternative to traditional banking and has struggled to gain traction. In reaction to Vodacom M-Pesa, MTN launched its own mobile money payment system named MTN MobileMoney, which has been significantly overhauled in 2012, to be more effective. In South Africa active mobile money subscriptions have increased to just under three million (BusinessTech 2013) with MTN MobileMoney having approximately 250 000 users signed up to their service and Vodacom M-Pesa currently having 850 000 users signed up to their service (Vodacom 2012). This constitutes only 3.5% of total bank accounts within the South African banked market.

With key statistics such as the relatively high mobile phone penetration of 132% and an unbanked population of 36% in South Africa, leveraging off successful bottom of the pyramid models, mobile money solutions like MTN MobileMoney and Vodacom M-Pesa remains well positioned to drive economic activity, bring marginalised individuals into the economic mainstream and providing stability in the lives of those with very limited means.

Both MTN MobileMoney and Vodacom M-Pesa users do not require a bank account to transact but will be able to:

- Deposit and / or withdraw cash at any local agent such as Vodacom and MTN outlets or any affiliated ATM and have it reflected in your account,
- Transfer money by SMS instruction to other mobile phone users, irrespective of the network which they belong with,
- Purchase airtime for yourself and / or any other user on the same or competing cellular network,
- Purchase prepaid electricity for yourself and / or any other person with a meter number, and
- Make payments for goods at participating stores such as Pick ‘n Pay, Boxer Stores for MTN subscribers only.

The purpose of this study is to investigate and research the gap in scholarly literature in the use and impact of mobile money transfer in the informal taxi sector. It will pay attention to the effects of the use of mobile money solutions on the informal taxi sector, with emphasis in South Africa, specifically in Cape Town in relation to banking.

1.3 Problem statement

1.3.1 *Main problem*

Determine the impact of mobile money systems on the informal taxi sector in South Africa, specifically Cape Town, and define the effect on business in relation to the role of banking in business.

1.3.2 *Sub-problem One*

Establish any impact of the mobile money system on the informal taxi sector in Cape Town.

1.3.3 *Sub-problem Two*

Identify the reasons for acceptance / non acceptance for the use of mobile money solutions by the informal taxi sector in Cape Town.

1.3.4 *Sub-problem Three*

Determine the effect of mobile money system on the informal taxi sector businesses, in Cape Town, in relation to the role of banking in business.

1.4 Significance of the study

The study filled a gap in that the last few years, new business models have emerged which leveraged the increased penetration of mobile phones to extend the reach to those without access to traditional retail banking services (Bilodeau et al 2011); limited scholarly research further explored the use of these mobile money systems, particularly within the South African informal taxi sector.

The study provides guidance to professionals within industry targeting the informal taxi sector with traditional banking products or looking for the development of new products or banking models for those excluded due to lack of proximity, socio-economic, and / or socio-cultural barriers. New products or banking models being alternate channels that could drive the next phase of revenue stream.

1.5 Delimitations of the study

The study was restricted to South Africa, Cape Town; specifically where the informal taxi sector manages their activities. The target population may prevent the findings from the study from being generalised, since the informal taxi sector has unique characteristics which should be taken into consideration when examining the research results.

The study does not include alternative or competing forms of mobile money systems to that of MTN’s MobileMoney and Vodacom’s M-Pesa.

1.6 Definition of terms

Cape Flats:

Is an expansive, low-lying, flat area situated to the southeast of the central business district of Cape Town, the area is known simply as 'The Flats'. Through race-based

legislation such as the group areas act, The Flats became the apartheid government's dumping ground for people designated as non-white, forcing many people designated as black and coloured out of the central urban areas into informal settlements in The Flats.

Cape Flats Afrikaans:

Is a local dialect mostly spoken by non-white persons from Cape Town also referred to as ‘kombuis taal’. The dialect is a mix between Afrikaans, English and colloquial words originating from culture. The dialect is predominantly spoken within the Cape Flats communities, and is ordinarily challenging to understand by outsiders, even those fluent in both English and Afrikaans.

ILO:

A United Nations agency serving as a central force between governments, businesses and workers to facilitate the need for workers to enjoy conditions of freedom, equity, security and human dignity (ILO 2002).

Informal Sector:

The informal sector refers to the non-structured sector, consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned. These units typically operate at a low level of organization, with little or no division between labour and capital as factors of production (ILO 2002).

Kombi-Taxi Sector:

Although a majority of the operators are licensed to operate through provincial registration, and are licensed by the public driving permits, the sector still forms part of the informal economy in the sense that the vast majority of operators do not register as tax payers and do not register their employees or adhere to any minimum standards of employment (Barrett 2003).

M-Pesa:

M for mobile and Pesa is derived from the Swahili and means money and thus mobile money. It is a branchless banking service initially introduced in 2007 in Kenya by Vodafone group to serve microcredit borrowers (Jones 2010). Subsequent to the success of the mobile money system in Kenya, Vodacom in collaboration with Nedbank progressed in 2010 to introduce the similar model within the South African market space.

MTN:

MTN is a multi-national telecommunications group offering voice and data communications products and services to individuals and businesses. MTN has GSM licences in twenty-one countries spanning three continents (MTN 2012).

MTN MobileMoney:

Was introduced to compete with Vodacom's M-Pesa mobile payment service to provide convenience to customers, MTN's Mobile Money as does M-Pesa allows customers to make payments from their mobile phones and transfer funds to other users easily with their mobile money account.

Mobile Banking:

At the most basic level, mobile banking is the provision of financial services through a mobile device. This broad definition encompasses a range of services, including payments, such as peer-to-peer transfers, finance, such as insurance products, and banking, such as account balance inquiries for individuals and businesses (Bilodeau et al 2011).

Nedbank:

Nedbank is a bank holding company and one of the four largest banking groups in SA measured by assets, with a strong deposit franchise. Its principal banking subsidiary is Nedbank Limited. The company provides wholesale and retail banking services, Insurance, Asset Management (Nedbank 2012).

Passenger Coordinators:

An individual employed by the taxi owner, whose sole purpose is to ensure the travelling experience is as efficient as possible. These individuals are tasked with collecting monies from passengers and instructing the driver where to stop for customers to get off. Not all taxi's make use of this individual, with certain taxis using passengers seated in the front to collect monies from other passengers.

Unbanked:

Individuals who do not own a traditional bank account. It may be individuals who have no access to traditional banking (Prescott and Tatar 1999), or have been able to find alternatives, such as micro-lenders or stokvels, to account ownership for basic banking services.

Vodacom:

Vodacom is an African mobile communications company providing voice, messaging, data and converged services. Vodacom is majority owned by Vodafone, one of the world's largest mobile communications companies by revenue (Vodacom 2012).

1.7 Assumptions

The following assumptions were made regarding the study:

- Respondents were able to clearly comprehend and interpret the questions posed in the interview and respond truthfully and accordingly.
- Respondents had an understanding of the MTN MobileMoney and Vodacom M-Pesa mobile money systems, and could demonstrate the potential impact, if any, that it may have on their business.

- Face to face interviews with the chosen sample in both the informal taxi and retail sector provided sufficient data which was used to explore and describe the impact of the mobile money systems on the informal taxi sector, as well as the impact on the customer.
- Professionals within industry targeting the informal taxi sector with traditional banking models as well as alternative mobile solution models should benefit from a better understanding of the specific banking requirements of informal taxi sector businesses and customers.

2 LITERATURE REVIEW

2.1 Introduction

This chapter provides an overview of the literature reviewed to formulate ideas and derive research propositions, which will form the basis of this research.

It introduces the theory of the informal taxi sectors. It then proceeds to cover mobile money, more specifically the transfer thereof to conduct payments, and finally the banking industry in its traditional retail format, the introduction of mobile banking to the industry and then the role of mobile banking in the business.

It should be noted as stated by Donner and Tellez (2008) that since the impact of mobile payment or mobile banking systems in the developing world is a new phenomenon, research and studies on the topic remain limited.

2.2 Informal Sector

Many labels have been used that ultimately refer to the informal economy: irregular economy, the black economy, the underground economy (Edgcomb et al 2002). The concept of the ‘informal sector’ was first coined in an International Labour Organization study conducted in 1972 of labour markets in Kenya (Bangasser 2000) and was then subsequently used in International Labour Organization reports of labour market conditions in other African cities as well as other formally recognized financial institutions when investigating urbanization and poverty throughout the Third World (Edgcomb et al 2002).

As suggested by Bangasser (2000) although the informal sector is small in scale and limited by simple technologies the bulk of employment in the informal sector, far from being only marginally productive, is economically efficient and profit-making.

The informal sector consists of tailors, carpenters, masons, retailers, and taxi-drivers, offering the full range of basic skills needed to provide goods and services for their target population (ILO 1972; Bangasser 2000).

ILO (1972) and later studied by Bangasser (2000) state that informal activities are not confined to employment on the border of the main towns, to particular occupations or even to economic activities. Rather, informal activities are the way of doing things, characterised by:

- Ease of entry, allowing individuals to enter and exit the economic activity that they are involved in, purely based on the response to market demand.
- Reliance on indigenous resources and the labourers or owners ability to develop products from waste materials.
- Family ownership of enterprise, and generally the family or related individuals do not allow others to own or operate the enterprise.
- Small scale of operation, often limiting potential for career growth, or growth in broader skills set within the organization.
- Labour-intensive and adapted technology, with skills acquired outside the formal school system; and
- Unregulated and competitive markets.

Furthermore ILO (1993) as well as Raijman (2001) defines the criteria for informal sector enterprise as follows:

- Enterprises are owned by individuals or a household that are not separate legal entities, and where no complete statement of accounts are available that would allow a financial separation of the production or manufacturing activities of the enterprise from the activities of its owners.
- Most goods or services produced are meant for sales or barter transactions.
- The size in terms of employment is below a certain level to be considered under a specific form of national legislation or the employees themselves are not registered.
- Involved in the non-agricultural sector, including secondary non-agricultural activities of enterprises in the agricultural sector.

In addition, Informal businesses lack the potential for growth, trapping employees in menial jobs indefinitely, but can absorb a large proportion of individuals looking for employment in economies that did not create enough formal jobs in their economic

plans, and allow them the opportunity to escape poverty by earning a satisfactory level of income that is sufficient for survival (ILO 2005).

Over the past decade, the informal economy is said to account for more than half of the newly created jobs in Latin America. In Africa it accounts for around 80% (Carr and Chen 2001).

Nevertheless the mobile phone has become entwined in the new social and economic patterns regarding micro-enterprises as well as the informal sector (Donner 2008).

2.2.1 *Kombi – Taxi*

The kombi taxi sector in South Africa has a history that is closely linked to the history of apartheid. From the early 1960s onwards, urban African people were increasingly relocated through forced removals to reside in areas far from the commercial and industrial centres of all South Africa's cities (Barret 2003).

The relocations made public transport increasingly expensive and time consuming for commuters since buses and trains operated at peak times only, and routes became less and less flexible. The growth of the kombi taxi industry in the late 1970s was in large part a response to this (Barret 2003).

The industries today is part of the informal economy, in the sense that the vast majority of operators do not register as tax payers and do not register their employees or comply with labour legislation such as minimum standards of employment. At 65% it has become the most commonly used form of public transport within the previously disadvantaged communities (TETA 2012) transporting daily 16 million passengers.

Other characteristic of the minibus taxis are:

- They operate on fixed commuter corridors, charging a fixed local fare. The fare system distinguishes the sector from the meter-fare taxi sector, in which passengers are transported on routes and distances as per request, and fares are based on the distance metering of a given journey.
- The majority of the taxis are not owner driven and most owners own more than one kombi but less than ten.

- The total number of employees countrywide is around 185,000, including drivers, queue marshals, car washers and fare collectors / passenger coordinators (TETA 2012).
- Additional jobs are indirectly associated with this sector, mainly in motor manufacturing, fuel, spare parts and vehicle maintenance (Barret 2003).
- The majority of operators do however have licences to operate through provincial registration processes, and the majority of drivers are licensed by Public Driving Permits (Barret 2003).

2.3 Mobile Money

Mobile money is money that can be accessed and used via mobile phone. In markets such as South Africa, Kenya, the Philippines and elsewhere, individuals are already using mobile money for transactions and services including domestic and international transfers, bill payment, payroll deposit, loan receipt and repayment, and purchases of goods and services ranging from prepaid airtime to groceries to bus tickets to micro-insurance. (Jenkins 2008).

There is no limit to the range of transactions and services for which mobile money could be used. The mobile money systems offer a variety of financial functions, including micropayments to merchants, bill-payments to utilities, peer-to-peer transfers between individuals, and long-distance transfers (Porteous 2007).

Different institutional and business models deliver these mobile money systems, some offered entirely by banks, others entirely by telecommunications providers, and still others involve a partnership between a bank and a telecommunications provider (Porteous 2007).

Therefore mobile money has significant implications for economic activity across the board, since it reduces the cost and risk inherent in dealing with cash, as well as facilitating the flow of money from one party to another using a communications infrastructure that already connects billions of customers around the world, far more customers than currently have bank accounts (Jenkins 2008).

Donner and Tellez (2008) argue that most mobile money systems in the developing world enable users to do three things:

- Store value ‘currency’ in an account accessible via the handset. This is possible though linking the mobile device to a traditional bank account. If no traditional bank account exists it can then function through a pseudo bank account held by a third party or the user’s mobile operator.
- Convert cash in and out of the stored value account, by the user visiting the branches of the bank where the account was created to make withdrawals or deposits. Alternatively the user can visit the mobile operator retail stores or any affiliated entity with the mobile operator that has agreed to support those services.
- Transfer stored value between accounts, through SMS or menu commands using PIN functionality between two mobile phone users.

The need and opportunity for mobile money are shared by businesses and their customers. For businesses across industries, the mobile channel could offer the opportunity to reach new customers as well as to provide better service to existing customers (Jenkins 2008).

In industries, such as telecommunications and retail services, it offers the chance to develop whole new business lines, such as mobile banking or mobile commerce / shopping within virtual retail stores.

For customers, the advantages of mobile money include affordability, security, and convenience. In addition the mobile channel may open access to financial services and other markets to low income customers who are currently excluded altogether (Jenkins 2008).

2.4 Banking Industry

2.4.1 *Traditional Banking in South Africa*

Johnson and Kaufman (2007) define a bank as a type of financial institution that deals primarily in financial instruments and derives most of its revenues from interest and fees

charged on its loans, investments, and deposits, or from trading in these securities. A bank is differentiated from most other financial institutions, in that a bank can accept deposits of funds that the bank may re-lend but that need to be repaid to the depositor at full value at a future specified or unspecified date.

According to the GSM Association, there are nearly five billion people globally who have limited or no access to traditional financial services. This is attributed to low levels of financial literacy, weaknesses in current financial infrastructure, lack of ATM's and banking branches in geographical proximity to the these individuals place of work as well as homes (Hughes and Loni 2007).

Lafar and Moore (2011) define six key barriers that exist within the traditional banking sector, which inhibits expansion rate of bringing the unbanked population of South Africa into the formal banking system.

These barriers are listed below:

- No money to save / individuals earn too little / individuals have non-recurrent flow of income and therefore the effort required to open a bank account compared to the value derived from it is not worthwhile.
- Banking fees which are too expensive in relation to the individual's current earning potential.
- Irregular inflow of income and therefore the cost to incur recurring monthly service charges to keep a bank account active in relation to the value derived from it is not worthwhile.
- Income levels do not meet banking criteria to qualify for a savings account.
- Individuals prefer to deal and have higher levels of trust in cash transactions only. This is further intensified because individuals do not understand what is required of them to own a bank account, and
- Currently unemployed and have no source of income.

Although Capitec and African Bank have made great progress in attracting these unbanked or previously banked individuals, a market leader in this space has yet to be established.

2.4.2 *Mobile Banking*

Mobile banking services enable legal entities to deposit and withdraw funds and make electronic payments without the need for traditional bank branches.

This is enabled not only through a wireless communications platform that is fast approaching global ubiquity, but also a network of retail agents, that allow distribution scale and some medium of interface between consumers and service providers performing functions such as opening accounts, accepting deposits, and dispensing withdrawals of cash (Bilodeau et al 2011).

Porteous (2007) argues that there are more people with mobile handsets that with bank accounts in the developing world, and therefore many banking initiatives have been geared around the mobile phone as a platform to banking the unbanked.

The above point is further emphasised through the fact that the mobile phone has emerged as an important tool to remove intermediaries from the existing ecosystem of banks and private payment or transfer services (Bilodeau et al 2011).

Greenwood (2009) argues that there are many drivers that have motivated the need for development of mobile banking in Africa. These drivers include:

- The need for safety and security of the money of the people as mobile banking makes it more secure than cash.
- The lower banking fees for mobile banking versus traditional banking particularly in the movement of cash between individuals and businesses in exchange for goods and services.
- The ease of use in the transfer of payment between two individuals or two sets of parties conducting a transaction.

Additionally the ease of opening a mobile banking account was also much easier than traditional bank accounts as the mobile banking account only needs an identity document, a mobile phone, and a deposit in order to fund the account being set up (Halperin, 2008).

2.5 Banking and Business

The traditional role of banks has been that of intermediary, that is, the bringing together of borrowers and lenders (savers or depositors). This can only be done successfully and for a sustained period with the careful management of credit, liquidity and interest rate risk (Competition Commission South Africa 2011).

Essentially, because a bank is funded primarily by depositors, it has an obligation to ensure that the risk which depositors' funds are exposed to is minimized.

However, in its role as intermediary, banks have developed systems to facilitate the transfer of funds, such that money can be transferred almost instantaneously, and with minimal risk to the parties involved. In fact, South Africa is ahead of many developed nations in this regard (Competition Commission South Africa 2011).

Financial sector inclusion is thus a critical prerequisite for effective market participation in its broadest sense. From being able to send a utility bill payment by mobile phone instead of losing a half day's work standing in a queue at the bank, to being able to integrate one's small business into the value chains of larger market players (Jenkins 2008).

As the United Nations Development Programme (UNDP) articulates, financial inclusion strengthens both access to resources and the ability to transform resources into opportunities (Jenkins 2008).

Swissbanking Org (2012) outlines a number of roles of banking in business such as:

- Encouraging a culture of saving within the formal financial system among the people and thereby having funds available within the community for productive use.
- Enabling remittances between individuals and business other than hard currency or cash.
- Acting as an intermediary between individuals that have excess funds in the form of savings and those that require funds in the form of loans for their respective business or personal activities, and

- Assists in national development and raising standards of living by providing loans to industry for capital investment as well as the loans for the purchase of consumer durable goods.

2.6 Conclusion of Literature Review

The literature review reveals that traditional banking plays an integral role in business and facilitating transactions between individuals and businesses.

Yet the impact that the conservative banking regulations as well as the high banking charges have made within the informal sector, is that it is a restricting factor to the acceptance and level of participation within the formal banking system. This is reflected through the significantly high percentage of unbanked and previously banked population in South Africa.

Nevertheless mobile phones with a SIM card penetration of 132% in South Africa, creates an opportunity for the unbanked and previously banked to participate within the formal banking system.

2.6.1 ***Research Proposition One***

The use of mobile money systems such as Vodacom M-Pesa and MTN MobileMoney has had a small impact on the informal taxi sector within the Cape Town area.

2.6.2 ***Research Proposition Two***

Slow acceptance, particular cost to transact, network user effect and changes to existing business model has hindered the informal taxi sector in Cape Town to realise full benefits of the mobile money system.

2.6.3 ***Research Proposition Three***

The need to participate in banking activities within the informal taxi sector exists.

3 RESEARCH METHODOLOGY

This chapter summarises the methodology used in conducting this research and in addressing the research propositions that have been put forward as possible solutions to the sub-problems identified.

It begins with a description of the chosen method through a review of the literature around the methodology. It then discusses the research design followed by descriptions of the methods that will be used in data collection, analysis and interpretation.

The chapter concludes with a discussion on the validity and reliability of the chosen research method.

3.1 Research Methodology

Research can be carried out using qualitative or quantitative methods or a combination of the two (Creswell 2009) to provide a proposed resolution of the research problem. The proposed research method used is of a descriptive, quantitative nature.

Babbie (2012) argues that if limited research or the subject of study itself is relatively new such as the case with the impact of MTN MobileMoney and Vodacom M-Pesa on the informal taxi sector, and by using a descriptive survey it is possible to obtain greater insight, through sampling from a larger population by means of questionnaire making use of checklists and rating scales (Leedy and Ormrod 2005).

The purpose therefore of this study was to explore and describe the characteristics of a selected phenomenon (Babbie 2012) being the impact that MTN MobileMoney and Vodacom M-Pesa has on the informal taxi sector within Cape Town.

3.2 Research Design

The research design used in this study consisted predominantly of a structured close-ended questionnaire, with some open-ended questions to support the data provided and also to confirm the understanding of the questions (Leedy and Ormrod 2005).

The questions were constructed based on the literature review and also from information obtained through preliminary interviews conducted informally with certain individuals directly involved in the taxi industry.

The questionnaire was conducted either one on one or one to many. Since many of the persons working in the informal sector have low levels of education the interviewer could assist in guiding the interview properly.

This above approach ensured that 89% completion rate was achieved, where twenty-eight individuals were approached and twenty-five completed the questionnaire successfully. Of the twenty-five individuals used for the sample, zero instances of ‘don’t know’ answers were noted.

The approach also allowed greater probing of questions to obtain additional meaningful information and insights that support many of the findings.

3.3 Population and Sample

3.3.1 *Population*

The population, for the purposes of this study, was deemed to include all individuals operating within the defined informal taxi sector in Cape Town, South Africa.

3.3.2 *Sample and Sampling Method*

The sample size of twenty-five taxi owners or owner drivers operating a taxi business within the Cape Flats area was deemed to be an adequate representation of the informal taxi sector in Cape Town by the research panel.

It was beneficial to consider a form of non-probability sampling in which decisions concerning the individuals to be included in the sample were taken, based upon a variety of criteria which included specialist knowledge of the research issue, or capacity and willingness to participate in the research.

Initial questioning ensured that the interviewees were representative of the required sample before administering the rest of the questionnaire.

3.4 The Research Instrument

The research instrument identified was a questionnaire, comprised mainly of closed ended questions with a few open ended questions which allowed for further insights and also confirmed whether the sample identified understood the concept of mobile money and questions asked.

The questionnaire was administered to the respondents face to face. No cover letter was utilised, but instructions were included on the first page of the questionnaire and was read out to the respondents.

The questionnaire comprised five pages and was divided into four parts. The first part covered the demographics of the specific taxi business being interviewed, the second part looked at the impact of mobile money on the taxi sector, the third part considered the efficiency of mobile money services, and finally the fourth part looked at the role of banking in business.

3.5 Procedure for Data Collection

The interviews within the informal taxi industry were pre-arranged after contacting chairperson of the various taxi associations within the Cape Flats area. The chairperson either introduced the various taxi owners or provided contact details as well as the taxi terminals from where they were operating from.

Interviews were conducted at the taxi owner's discretion at the taxi terminal, taxi association headquarters or any venue of their choice, which assisted in ensuring that a relaxing environment was maintained, allowing for more accurate answers and in depth probing of open ended questions.

The locations where the taxi owner / owner driver were interviewed also presented an opportunity to observe the working environment of the respondent, adding to additional information to validate findings.

3.6 Data Analysis and Interpretation

All data collected from this survey was summarised and analysed using percentages, frequency counts and combinations between various sets of data.

3.7 Limitations of the Study

The data collected from the target population may prevent the study's findings from being generalised in either the formal taxi (public transport) sector or the broader informal sector as a whole, since the formal public transport sector as well as other informal sectors has unique characteristics that give root to the specific business models implemented.

The questionnaire was constructed in English, and in most cases English was not the mother tongue of the individuals in the informal taxi sector in Cape Town. However where necessary Cape Flats Afrikaans was used as the language of preference to ensure that no alternate understanding or interpretation of the questions posed occurred.

3.8 Validity and Reliability

The validity of a measurement is the extent to which the instrument measures what it is supposed to measure (Leedy and Ormrod 2005) while reliability of a measure is simply the accuracy and consistency that the instrument produces results (Babbie 2012).

3.8.1 ***External Validity***

External validity is the ability of the research to be generalised to and across different measures, individuals, settings and time (Calder, Phillips and Tybout 1982).

To ensure that the findings are statistically sound, the sampling technique utilised was to purposefully identify the target population and sample from within this population, and therefore the findings cannot be generalised.

3.8.2 *Internal Validity*

The internal validity of a research study is “the extent to which its design and the data it yields allow the researcher to draw accurate conclusions about cause-and-effect and other relationships within the data” (Leedy and Ormrod 2005: 97) However internal validity is more relevant in studies that try to establish a causal relationship and not relevant in most observational or descriptive studies, such as interpretive research (Rowley 2002).

To therefor achieve internal validity, the design of the questionnaire was based on the information obtained in the literature review, as well as preliminary interviews conducted informally with certain individuals directly involved in the taxi industry.

3.8.3 *Reliability*

Kirk and Miller (1986) as well as Perry (2001) state that reliability of a study refers to how often a study will yield the same results, no matter when or where it is replicated, and the degree to which the findings are not just as a result of accidental occurrences at the time of the research.

Although the research through the questionnaire was administered face to face to ensure sufficient support was provided to the respondents, the biggest factor in guaranteeing internal consistency was the simple and unambiguous questions used, the use of ranking scales, and the option to communicate in local dialect to safeguard against any misunderstanding.

4 PRESENTATION OF RESULTS

4.1 Introduction

This chapter presents the data derived from the questionnaire as per the structured four parts. Part one is a summary of the informal taxi businesses interviewed. Parts two, three and four are focussed on providing information around the three research propositions, with the objective of drawing possible inferences about the population from the sample responses. All parts are presented though percentages, frequency counts, and combination of data sets.

4.2 Results pertaining to taxi business structure

Information obtained through part one, was done with the intent of confirming that the respondents were indeed representative of the target population. The questionnaire identified the different business structures pertaining to the number of taxis operating and persons employed within the business, the duration that the taxi owner has been operating their business, the legal structure used in running the business operation and some knowledge around customers transported per day.

4.2.1 *Taxis Owned and Persons employed*

Figure 1 illustrates the number of taxis owned in relation to number of persons employed, with twenty of the twenty-five respondents owning from one to ten taxis and fifteen of the twenty-five respondents employing from one to ten persons. These results are in line with the characteristics of the taxi sector, where the majority of the taxis are not owner driven and that most owners possess between one and ten taxis.

Some of the respondents owning one or more but less than six taxis are owner drivers and generally own one and at most two taxis. The owner drivers would therefore employ one or at most two persons, excluding him/herself, this would explain the reason for taxis owned not being the same ratio to persons employed across all scales.

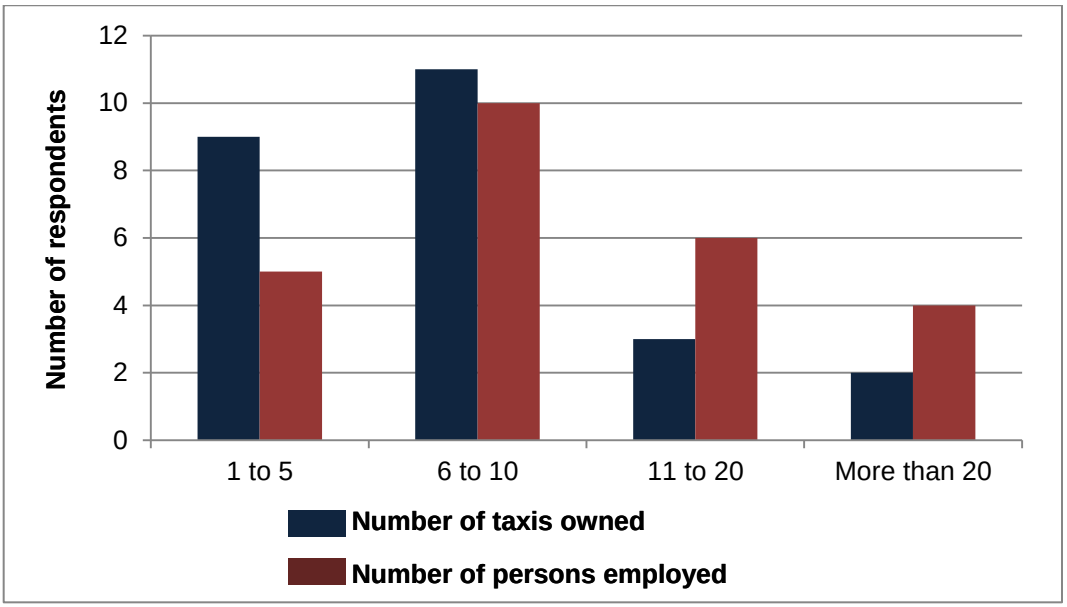


Figure 1: Number of taxis owned and persons employed

4.2.2 *Duration of business in operation*

The number of years that the respondents have been operating their taxi businesses ranged from one to fifteen or more years as shown in Figure 2.

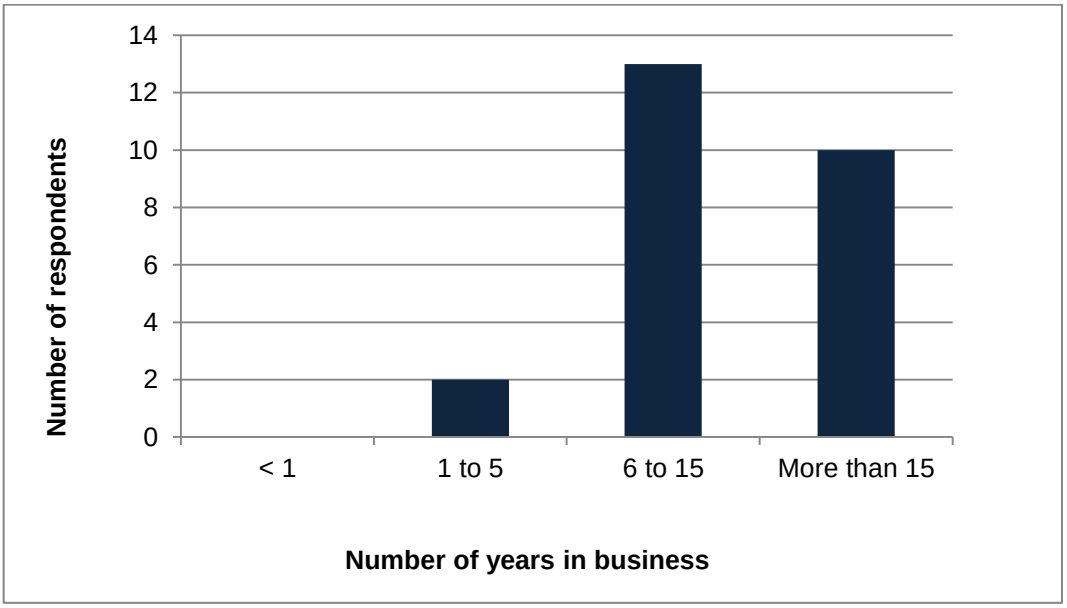


Figure 2: Number of years in business

Zero instances were recorded where the respondent has been operating for under one year. The majority being twenty-three out of twenty-five respondents have been operating their businesses for a period of six or more years.

The data reflects that the sample of taxi owners interviewed have more than sufficient knowledge on their business operations and the informal taxi sector as a whole. This industry knowledge is critical in answering certain open ended questions relating to the impact of mobile money on the informal taxi sector.

4.2.3 *Legal entity that business operates under*

The distribution of the form of business types or legal entity is illustrated in Figure 3. The largest proportion of respondents was sole owners recording eighteen responses, followed by company at four responses and partnership with three responses.

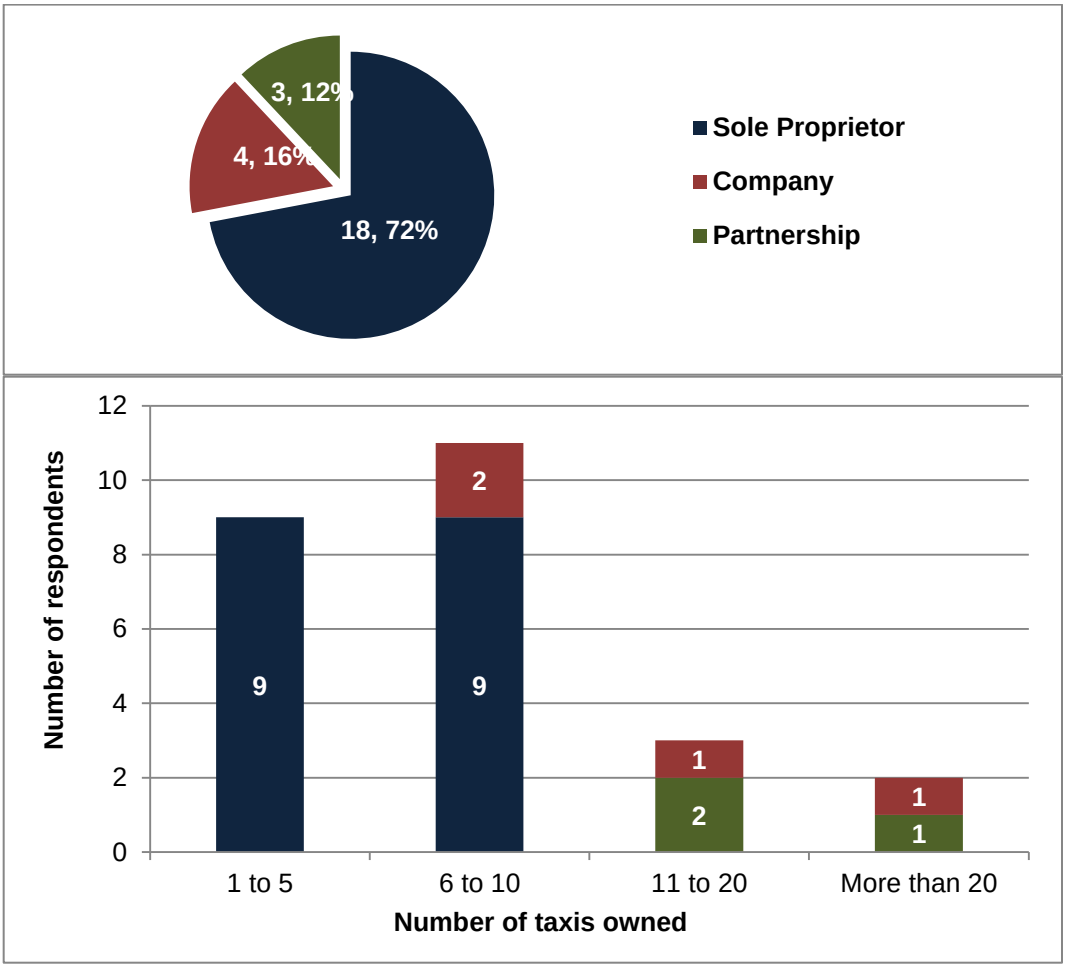


Figure 3: Legal entity utilised by respondent to operate business

The legal entity data in Figure 3 is further dissected to demonstrate the spread of legal entities used across the different scales of taxis owned. Of the eighteen responses recorded that operate under a sole proprietorship legal entity, all fall into the category of owning from one but not more than ten taxis. The remainder of the legal entities are company and partnership legal entities although these fall into the larger scale of eleven taxis and more.

It was observed that all three of the partnerships recorded were brothers who were in business together. The results are in line with the characteristics of the informal sector, where enterprises are owned by individuals or households that are not separate legal entities, as well as family ownership of the enterprise.

4.2.4 *Amount of customers transported daily*

Figure 4 illustrates the number of passengers transported daily in one taxi. The mean figure is 130 passengers, both the median as well as the mode is 135 passengers with the mode recording nine instances. The range of the sample taken is from 120 to 140 with a standard deviation of 7.8. This data recorded confirms that all owners are cognisant of their business operations, as no outliers were observed, and a very narrow standard deviation was recognized.

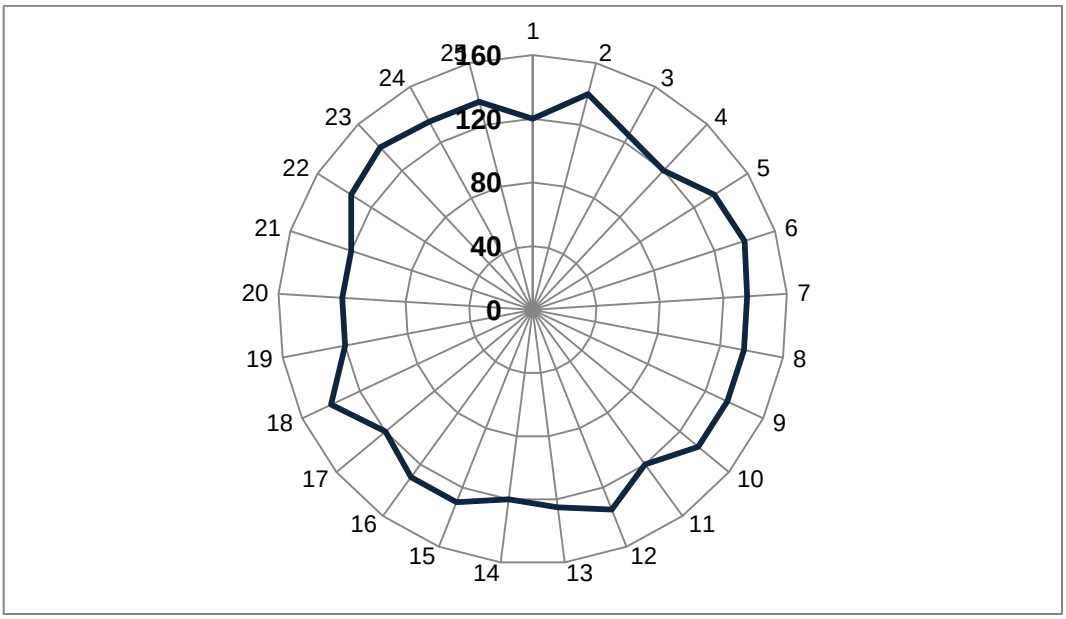


Figure 4: Respondents spread of customers transported daily in one taxi

4.3 Results pertaining to impact of mobile phone on taxi industry

Proposition One stated that the use of mobile money systems such as MTN MobileMoney and Vodacom M-Pesa has had a small impact on the informal taxi sector within the Cape Town area.

Respondents were asked whether or not they use the MTN MobileMoney or Vodacom M-Pesa systems, with the objective of identifying what type of service offerings are consumed, the frequency that the service offerings are used.

4.3.1 *Mobile money services used within taxi sector*

Ten of the twenty-five respondents, at 40%, confirmed using MTN MobileMoney or Vodacom M-Pesa services. As represented in Table 1, of the respondents that use MTN MobileMoney or Vodacom M-Pesa, all ten use the system to receive funds, while only seven use the system to make payments.

Table 1: Distribution on the use of Vodacom M-Pesa or MTN MobileMoney

Yes/No	Use mobile money to receive funds	% of Total	Use mobile money to make payments	% of Total
Yes	10(25)	40%	7(25)	28%
No	0(25)	0%	3(25)	12%

Table 2 further divides the distribution of respondents across number of taxis owned and persons employed, which illustrates the type of taxi operation willing to accept MTN MobileMoney or Vodacom M-Pesa as a method of receiving payment as well as using stored mobile money funds to facilitate business within the taxi eco-system as a method to make payment.

It should be noted, in Table 2 only the 10 respondents using MTN MobileMoney or Vodacom M-Pesa services were categorised and thus presented in the last 3 columns.

Columns 2 and 4 are the total population sampled and presented under the two categories of ‘taxi size’ and ‘persons employed’.

As depicted in Table 2, taxi businesses operating with more than ten taxis, totalling five respondents do not use the MTN MobileMoney or Vodacom M-Pesa mobile money systems. This is similar, if extended to persons employed, where businesses employing more than ten persons, totalling ten respondents, also do not use MTN MobileMoney or Vodacom M-Pesa.

Table 2 Distribution on mobile money use according to taxi structure

Taxi Size	#	Persons Employed	#	Use M-Pesa / MobileMoney	Receive Payment	Make Payment
1 to 5	9	**1 to 5**	5	5 (0)	5 (0)	5 (0)
		6 to 10	4	1 (3)	1 (0)	0 (1)
6 to 10	11	**6 to 10**	6	4 (2)	4 (0)	2 (2)
		11 to 20	5	0 (5)	N/A	N/A
11 to 20	3	**11 to 20**	1	0 (1)	N/A	N/A
		20 <	2	0 (2)	N/A	N/A
20 <	2	**11 to 20**	0	0 (0)	N/A	N/A
		20 <	2	0 (2)	N/A	N/A

Differing from larger business operations, businesses that have smaller fleets of between one but not more than ten taxis that naturally also employ fewer persons appear to be the most active users of mobile money within the taxi industry. All five respondents that own businesses operating with between one but not more than five taxis as well as employing between one but not more than five persons use the MTN MobileMoney or Vodacom M-Pesa services to receive and make payment. The other five respondents

which also use the MTN MobileMoney or Vodacom M-Pesa service offering employ from a range of six to ten persons of whom one has a small fleet ranging from one to five taxis and the remainder of four has a fleet ranging from six to ten taxis.

Based on the data it would appear that smaller taxi businesses are more active MTN MobileMoney and Vodacom M-Pesa users, and that they would be more willing to continue to use these services in the future to conduct their business activities with. The larger taxi businesses could potentially have concerns around the issuing of multiple SIM cards to persons employed as drivers or taxi coordinators collecting monies from passengers. Although this concern can be mitigated by implementing a business model that ensures better control and security of SIM cards issued to employees.

4.3.2 *Mobile money frequency of use within taxi sector*

Table 3 points to MTN MobileMoney and Vodacom M-Pesa payments and receipt service offering having low levels of usage per week. Isolating receipts per week, the frequency of transactions received is substantially lower than the average number of receipt transactions incurred per week from fare charges. This is calculated below using data previously discussed.

- 130 average customers transported per working day
- * 5 working days per week
- = 650 transactions per week @ one taxi
- = 3250 transactions per week @ five taxis
- = 3900 transactions per week @ six taxis
- = 6500 transactions per week @ ten taxis

Table 3: Frequency of receipts and payments made per week

Frequency	Receipts per week	% of Total	Payments made per week	% of Total
1 – 5 times	6	60%	7	100%
6 – 15 times	4	40%	0	0%
16 – 30 times	N/A	N/A	N/A	N/A
More than 30	N/A	N/A	N/A	N/A

Using the first scale of ‘taxi size’ from Table 2 as a guideline, from the respondents that use MTN MobileMoney or Vodacom M-Pesa the lowest average of transactions conducted per week is 650 with one taxi and the highest average of transactions conducted per week is 3250 at five taxis. Concurrently using the first scale of ‘frequency’ from Table 3, it can straightforwardly be deduced that the six instances of mobile money receipts per week, at a minimum is 0.92% and at a maximum is 4.6% of all transactions for one taxi. Furthermore this is even further reduced, at a minimum 0.18% and at a maximum 0.92% for five taxis.

Using the second scale of ‘taxi size’ from Table 2 as a guideline, and concurrently using the second scale of ‘frequency’ from Table 3, it can be straightforwardly deduced that the four instances at twenty four mobile money transactions is at a minimum 0.61% and at a maximum 1.5% for six taxis. This is further reduced to 0.36% at a minimum and 0.92% at a maximum for ten taxis.

Using either combination of scales, the percentage of transactions using mobile money is a very small percentage of total transactions incurred per week.

As represented in Table 4 the most common transaction size of funds received is between R500 and R2000 per week with six respondents, while the most common and only transaction size of funds paid, is less than R500.

Table 4: Distribution of amounts received and paid by respondents per week

Amounts per week	Received	% of Total	Paid	% of Total
< R500	4	40%	7	100%
R500 – R2000	6	60%	0	0%
R2001 – R3500	N/A	N/A	N/A	N/A
R3500 <	N/A	N/A	N/A	N/A

4.3.3 *Most common mobile money transactions conducted*

Only 20% of the respondents mentioned that they use MTN MobileMoney or Vodacom M-Pesa to store money, it was observed that most of the respondents do not deposit funds into their accounts, but prefer to use existing funds received through payments to transact with when necessary.

Common transactions conducted are mainly purchasing airtime for themselves or others, purchasing prepaid electricity and transferring funds for family members who are also registered users. Zero observations were noted where the respondents used MTN MobileMoney or Vodacom M-Pesa to pay wages, or to transact further within the taxi eco-system.

Very few respondents were aware of the difference in MTN's offer compared to Vodacom, which enables registered MobileMoney subscribers to pay for goods at Pick 'n Pay or Boxer stores, using their MTN MobileMoney funds. Zero respondents made use of this difference in offer by MTN.

4.4 Results pertaining to efficiency of mobile money services

Proposition Two stated that slow acceptance, particular cost to transact, network user effect and changes to existing business model has hindered the informal taxi sector in Cape Town to realise full benefits of the mobile money system.

This section looked at what payment systems are currently being used, and what are the costs differences and other reasons for the slow acceptance rate of MTN MobileMoney and Vodacom M-Pesa.

4.4.1 *Methods of payment currently used and associated costs*

Figure 5 graphically explains the method of payment currently used by all respondents and ignores cash as a method of payment from this analysis. Eight respondents have only used MTN MobileMoney or Vodacom M-Pesa within their business, while eleven respondents have only used traditional banking. Two instances were recorded where respondents use both traditional banking and MTN MobileMoney or Vodacom M-Pesa, with four respondents claiming that they don't use neither traditional banking nor mobile money systems. It can be deducted that these four respondents, rely solely on physical cash to conduct business activities such as paying suppliers, staff and general maintenance of the taxi vehicles.

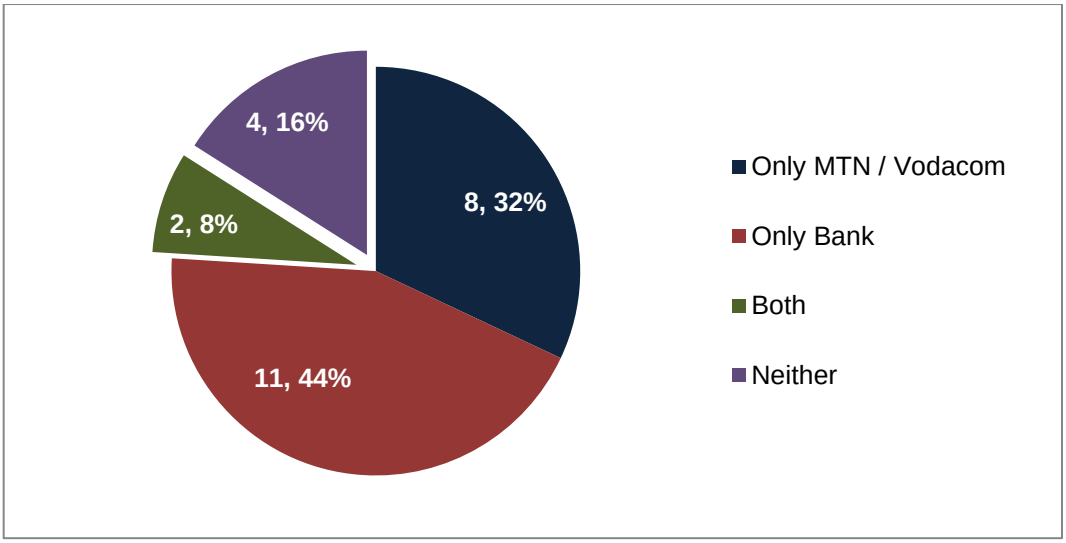


Figure 5: Method of payment currently used, excluding cash

Figure 6 illustrates the distribution of respondents relating to the different method of payment systems currently used including that of cash, and excluding MTN MobileMoney and Vodacom M-Pesa.

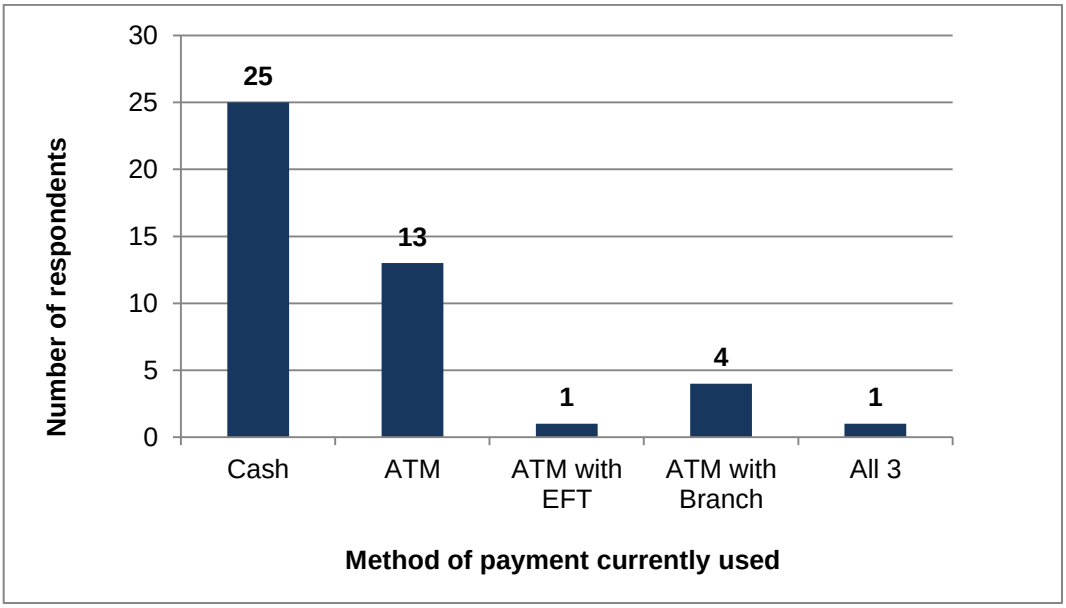


Figure 6: Method of payment used, excluding MobileMoney and M-Pesa

It is clear to note that all twenty-five respondents currently still use cash as a method for making payments. Thirteen respondents own a bank account and all thirteen make use of the ATM, four of the thirteen respondents use the bank branch in combination with the ATM, while one respondent uses electronic funds transfer in combination with the ATM and finally one respondent uses a mixture of all three methods.

Table 5 combines' data from Figure 5 as well as Figure 6 and divides the distribution of respondents across number of taxis owned. The table demonstrates that of the nine respondents operating with between one but not more than five taxis, only six respondents currently conduct business on a cash basis combined with the use of MTN MobileMoney or Vodacom M-Pesa, but none of these respondents use traditional banking services. The remainder of three respondents operate purely on a cash basis.

Looking at the second scale 'six to ten' taxis, the eleven respondents are well distributed, with one respondent preferring to use cash only, six respondents using cash and traditional banking, 2 respondents using cash and mobile money, and finally two respondents using all three methods of payment. This further illustrates that the taxi

operations that fall within the first two scales are more likely to continue to use MTN MobileMoney and Vodacom M-Pesa, since their operations and business model may be simpler to manage.

Table 5: Distribution on method of payment according to taxi structure

Taxi Size	#	Cash Only	Cash with Bank Only	Cash + Mobile Money Only	All 3
1 to 5	9	3	0	6	0
6 to 10	11	1	6	2	2
11 to 20	3	0	3	0	0
20 <	2	0	2	0	0

Finally the charges incurred using MTN MobileMoney or Vodacom M-Pesa compared to traditional banking models have no difference amongst the two respondents that use all three methods of transacting. Yet the charges incurred on both MTN MobileMoney and Vodacom M-Pesa increases in relation to transactions conducted, since the low frequency of transactions conducted via the service is not comparable to the high frequency of transactions still conducted through the respondents' current method of payment, an accurate conclusion cannot be made that weekly costs will remain the same.

4.4.2 *Acceptance or lack thereof of MTN MobileMoney or Vodacom M-Pesa*

In Table 6, following the opinion based questions and supported by reasons from the respondents, provide further insight into the consideration for using MTN MobileMoney and Vodacom M-Pesa as well as reasons for the slow acceptance thereof.

Table 6: Summary of reasons to use MTN MobileMoney or Vodacom M-Pesa

Consideration for using Mobile Money	Yes	% of Total	No	% of Total
Convenient to use	7	70%	3	30%
Cost effective	0	0%	10	0%
Safer option than cash	8	80%	2	20%
Distribution network	7	70%	3	30%
Network effect (users)	4	40%	6	60%

a. ***Acceptance criteria***

Safer option than cash:

Of the respondents, 80% stated that they considered using MTN MobileMoney or Vodacom M-Pesa due to it being a safer option to cash. Taxi drivers are constantly at risk of being robbed, or misplacing money through their cash handling process, as through the duration of the day a large sum of cash is generated by the business operation. Currently owners implement multiple scheduled drops off points to mitigate these risks, but it adds complexity to a business model. Other taxi owners let the driver incur all risk and only request a fixed amount of money per day, all operating costs in running the taxi needs to be covered by the driver, including misplaced funds or theft. Both these models are not ideal within the informal taxi sector.

Convenience and distribution network:

Of the respondents, 70% feel that it is convenient, easy to use, and is well supported through the impressive distribution network of MTN and Vodacom mobile phone outlets. This distribution presence is further enhanced by having affiliated agents, such as ATMs and retail food shops. It is quite easy to convert mobile money funds into cash and vice versa.

b. ***Non acceptance criteria***

High cost to the customer:

All of the respondents feel that the MTN MobileMoney or Vodacom M-Pesa service is not cost effective, especially from a customer perspective wanting to transact daily and using MTN MobileMoney or Vodacom M-Pesa as a method of paying for taxi fares. Per transaction it costs MTN MobileMoney users R1.00 and Vodacom M-Pesa users R2.45.

Considering that the average passenger on daily commute uses two taxi trips to get to their destination, and then the same taxi trip to return home, it becomes costly to incur transaction costs of either R1.00 or R2.45 on four transactions per day. This is further highlighted considering that one leg of a trip has an average cost of R8.00, totalling R16.00 for an end to end trip, in this scenario the passenger would need to incur additional expenses amounting to R2.00 or R4.90 for one end to end trip and then the same transaction expense when returning home.

Network Effect:

The cost factor could be a critical reason for the slow uptake of MTN MobileMoney and Vodacom M-Pesa; this is reflected through the network effect scoring only 40%. Respondents feel that by using MTN MobileMoney and Vodacom M-Pesa they are restricted in terms of other businesses within the taxi eco-system, displayed in Figure 7, being willing to accept alternative forms of payment outside of physical cash and traditional banking models. Many of these formal businesses are critically involved within the taxi eco-system.

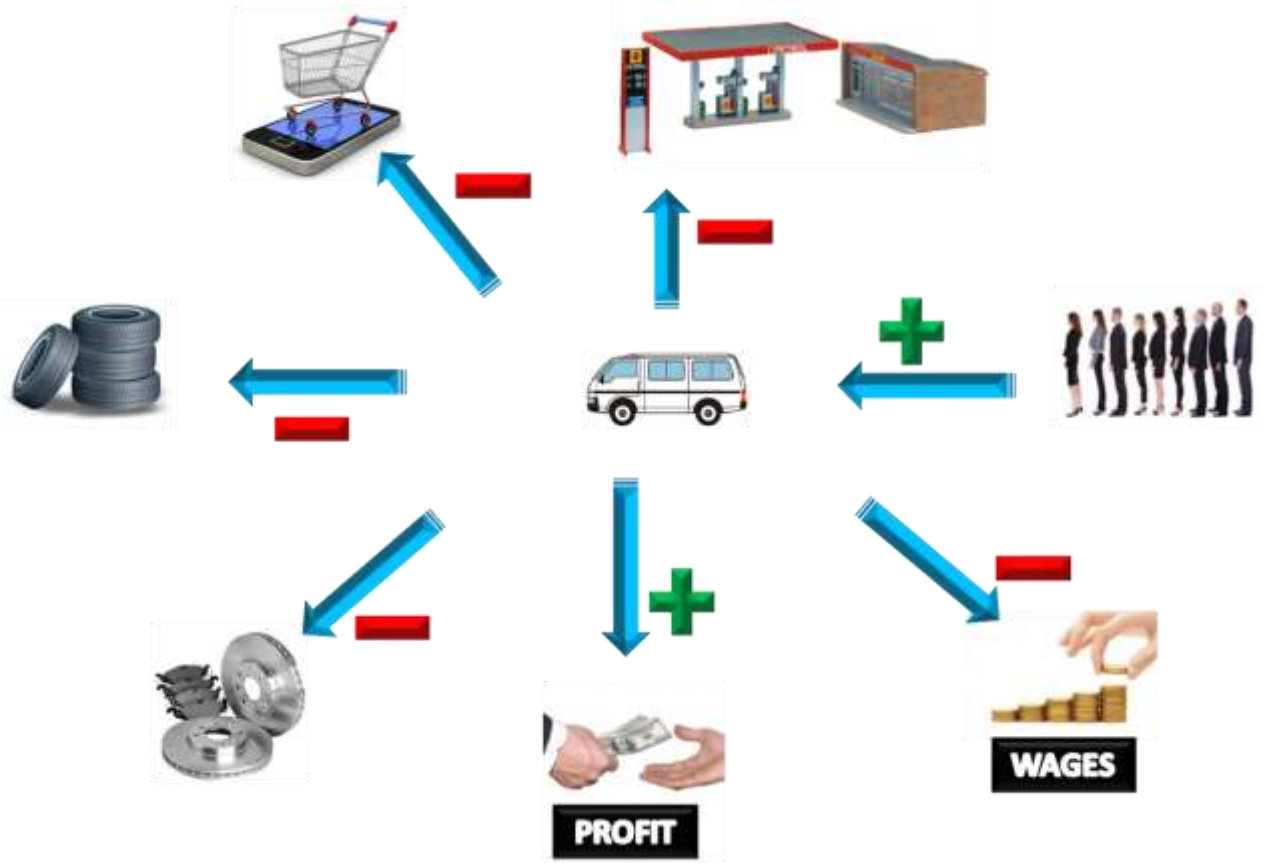


Figure 7: Taxi sector flow of monies

- Retail fuel stations are transacted with daily, often filling up twice in one day and fuel is a significant percentage of operating costs for taxi owners or drivers.
- Food retail outlets purchasing a meal on the go, is also transacted with daily, but this is only limited to Pick ‘n Pay and Boxer stores.
- Spare parts, general maintenance and purchasing of new tyres is also a significant percentage of operating costs, however none of these businesses are willing to accept alternative forms of payment outside of traditional banking or cash.
- Passengers use MTN MobileMoney or Vodacom M-Pesa payments only in exceptional instances. Very rarely do passengers utilise mobile money systems on day to day business travel, but when they are used it is very often via a group of related individuals all travelling to the same destination, this is done to minimise costs. Examples of these are group of high school children all traveling from the same location, group of friends spending a Saturday at a specific.

- Paying wages is almost solely done in cash, as drivers and taxi coordinators do not want to accept MTN MobileMoney and Vodacom M-Pesa due to its limitations in use.

To conclude too few customers and business are users of the MTN MobileMoney and Vodacom M-Pesa services. When looking at the volume of passengers, in Cape Town alone, using the taxi sector as a mode of transport, it amounts to two million persons per day. This is double the collective amount of registered subscribers of MTN MobileMoney and Vodacom M-Pesa in South Africa.

4.5 Results pertaining to the role of banking in the taxi sector

Proposition Three stated that the need to participate in banking activities within the informal taxi sector exists, through the facilitation of business transactions like receiving funds and making payments, provision of loans, and ability to deposit and withdraw funds.

This section posed questions to whether or not respondents owned a bank account and the banking services the respondents currently utilise, the importance of those services to their taxi business and whether MTN MobileMoney or Vodacom M-Pesa can facilitate an improvement in any of their business operations.

4.5.1 *Importance of traditional banking services to the taxi sector*

Figure 8 illustrates thirteen respondents, representing 52%, that own a bank account.

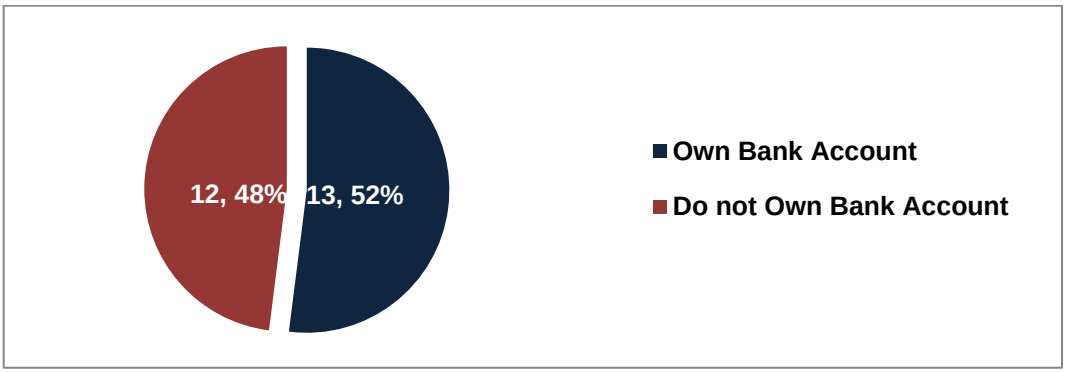


Figure 8: Respondents that own a bank account

Table 7 further divides the distribution of respondents across number of taxis owned and persons employed, which illustrates the type of taxi operation that make use of traditional banking services.

Table 7: Distribution of bank account owners according to taxi structure

Taxi Size	#	Persons Employed	#	Own a bank account
1 to 5	9	**1 to 5**	5	0 (5)
		6 to 10	4	0 (4)
6 to 10	11	**6 to 10**	6	3 (3)
		11 to 20	5	5 (0)
11 to 20	3	**11 to 20**	1	1 (0)
		20 <	2	2 (0)
20 <	2	**11 to 20**	0	0 (0)
		20 <	2	2 (0)

All respondents operating with five or fewer taxis do not own a bank account, while only three of the eleven respondents operating with between six or more but not more than ten taxis do not own a bank account. The larger taxi operations which are predominantly using partnership and company legal entities all make use of traditional banking services.

Of the 52% of respondents that own a bank account in Figure 8, the services utilised were rated and presented in Table 8, where most of the services were used sometimes rarely or never.

Table 8: Response to what banking services are utilised

Banking Service	Never	Rarely	Sometimes	Often	Always
Receive Payment	0	8	5	0	0
Make Payment	0	7	6	0	0
For Loans	5	8	0	0	0
Withdrawals	0	6	7	0	0
Deposits	8	5	0	0	0

There were no instances within the sample of respondents that of use any of the banking services ‘often’ or ‘always’. It is also interesting to note that depositing money into a bank account is either never at 61% of the time or rarely with 59% of the time being used.

This demonstrates that even though respondents own bank accounts, most of the business profits are retained as cash, and this in turn is used to cover a large proportion of the operating expenses of the business.

Respondents rated the importance of the five banking services to their business but also categorically stated that neither MTN MobileMoney nor Vodacom M-Pesa has fully replaced these services.

Table 9 and illustrates that basic transacting services like making payment and receiving payment while also ensuring that transacting can be done easily without restrictions or limitations is generally somewhat to very important to the respondents business. Access to stored money is not that critical which is supported by the evidence found in Table 8 where respondents do not often deposit money, and therefore operate largely still on a cash basis and do not require access to stored money regularly. Banking advisory services represented by eleven instances at 85% is classified as not important illustrating that there is almost no need for this service in the informal taxi sector.

Table 9: Importance of banking services to taxi sector

Banking Service	Not Important	Somewhat Important	Very Important	Replaced by mobile money systems?
Quick Receiving of Money	0	8	5	100% no
Quick Sending of Money	2	8	3	100% no
Access to Stored Money	5	7	1	100% no
Ease of Transacting	0	5	8	100% no
Advisory Services	11	2	0	100% no

4.5.2 *Potential benefits of using mobile payment systems*

Payment of salaries:

If utilised fully within the taxi industry, it would be possible to pay drivers and passenger coordinators in a safe and secure way, since at the moment it is done almost solely by means of cash.

Reduce risk of theft:

If all payments can be done electronically it will allow safer options to store money. At an average of 130 passengers transported in one taxi per day and an average spend per customer of R32 per round trip means that revenue generated per day totals to R4160. This is a sizeable amount of cash that is held at any point in time, and taxi drivers are at risk of being robbed, losing or misplacing the money.

Streamline cash management system:

If fuel retail service stations as well as food outlets, as a starting point, were to accept mobile money systems as a form of payment to ensure that taxi drivers can refuel and purchase meals with one form of payment method, it would bring about an improved system for managing cash, and taxi owners would be able to effectively monitor route

throughput at different times during the day, and modify their operations to generate greater cost saving, or increase revenues.

Improve speed of transactions

As instant as cash is, it does take time to make a payment for a route, often passengers require change, other times they search for the fare in their pocket or bag and this slows down operations. If the exact amount can be transferred between the two parties it would bring greater speed and efficiency into the current process, with the potential to increase revenue.

5 CONCLUSION AND RECOMMENDATION

5.1 Introduction

In this chapter the findings are presented in a summary form, as responses to the propositions presented in the previous chapters. Recommendations and improvements are also discussed.

5.2 Conclusions of the research

5.2.1 ***Proposition One***

The use of mobile money systems such as Vodacom M-Pesa and MTN MobileMoney has had a small impact on the informal taxi sector within the Cape Town area.

Although there are occurrences of MTN MobileMoney or Vodacom M-Pesa transactions within the informal taxi industry, from a transactional frequency perspective compared to frequency of cash transactions it is incomparable.

5.2.2 ***Proposition Two***

Slow acceptance, particular cost to transact, network user effect and changes to existing business model has hindered the informal taxi sector in Cape Town to realise full benefits of the mobile money system.

The key reasons for this is firstly the cost incurred by the passenger to transact when paying for a fare increases the total cost of the fare by a minimum of 12%, this appears to be the largest obstacle from a customer perspective. Secondly once payment is received by the taxi owner via mobile money systems, there are almost no formal businesses that accept this form of payment in return for goods or services that are linked to the taxi industry.

5.2.3 *Proposition Three*

The need to participate in banking activities within the informal taxi sector exists.

A slight majority of the respondents have bank accounts, but still predominantly use cash as a form of payment when transacting, however a significant majority of the respondents stated that quick transacting, both receiving and making payments, in an easy and convenient manner is somewhat if not critical in operating their business. The potential clearly exists for mobile money payment systems to change for the better the way in which cash is currently handled, both in terms of streamlining operations and reducing risk in cash management.

5.2.4 *Summary*

Vodacom M-Pesa and MTN MobileMoney service has had a small if insignificant impact on the informal taxi sector. Furthermore from evidence and observations it can be concluded that Vodacom M-Pesa and MTN MobileMoney is currently predominantly used to transfer money between users who are relatives and purchasing airtime. There is limited transfer of money between users in exchange for goods or services, as identified through the research conducted within the informal taxi industry.

5.3 Recommendations

The research was conducted on the premise that there are companies that have the aim of targeting the previously banked or unbanked population with traditional banking products or looking for alternate channels by unbundling traditional banking services in order to reach previously banked or unbanked.

Mobile phone use is growing at a remarkable speed around the world, and today customers can pay for goods and services directly via the exchange of book entry method ‘BEM’ without the need for intermediating through cash. Companies can purchase and sell supplies through payments made by mobile connections, however as presented in the findings there is much debate about whether mobile electronic forms of payment are likely to replace cash in the taxi sector. It is unlikely to happen in the

immediate future partly because of the general acceptance of cash and partly because of the relatively high charges levied on electronic transfers such as MTN Mobile Payments and Vodacom M-Pesa.

Mobile telephony companies should continue to find new and innovative ways to turn the mobile phone into a tool for accessing basic banking services. In conjunction the banking industry will certainly need an improved understanding of people's needs, current adoption and usage patterns of the informal taxi sector and develop products and mobile payment systems that engage with the informal taxi sector's needs.

The result is that mobile money could provide a platform that could potentially be leveraged to service the financial needs of the informal taxi sector's and considering that 2 million passengers in Cape Town, and 16 million passengers in South Africa use the taxi industry daily, if successful is has the ability to enable and catalyse the development of mobile commerce.

6 SUGGESTIONS FOR FURTHER RESEARCH

The study focussed on the informal taxi sector of the economy and the impact that mobile money systems, like MTN MobileMoney and Vodacom M-Pesa, has on the taxi sector.

Additional research could take these findings further and focus on other informal sectors such as spaza shops or street vendors within the informal retailing industry in South Africa and explore whether mobile money systems, like MTN MobileMoney and Vodacom M-Pesa has had any impact on the business.

Another area of study would be to focus on the formal sector and explore whether there is an appetite to accept mobile money systems as a form of payment, with a focus on efficiencies and the role of banking.

Also to be studied would be the shift to mobile payment solutions using near field technology as a means of transferring airtime, thereby eliminating cost to transact almost entirely and the effect it has had / could have on the traditional banking system.

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APPENDIX A

Questionnaire

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To whom it may concern:

The aim of the research is to assess the potential impact of MTN MobileMoney or Vodacom M-Pesa service on the minibus/kombi taxi sector in Cape Town, and also serves as a part component towards the completion of an MBA degree.

Instructions:

The survey consists of four parts; each part is aimed with the end result of providing sufficient information around your taxi business, the impact of mobile money on your sector, the efficiency of mobile money services, and the role of banking in business.

Please complete the questions below that will most accurately reflect your experience or opinion to the best of your knowledge.

Part One: Taxi business structure

Q1.1 What is the size of your fleet of taxis? (Tick correct box)

☐ 1-5 taxis ☐ 6-10 taxis ☐ 11-20 taxis ☐ More than 20 taxis

Q1.2 How many employees do you currently have in this business? (Tick correct box)

☐ 1-5 persons ☐ 6-10 persons ☐ 11-20 persons ☐ More than 20 persons

Q1.3 What is the volume of customers transported per day in one of your taxis_____?

Q1.4 How long have you owned / operated this business? (Tick correct box)

☐ Less than 1 year ☐ 1-5 years ☐ 6-15 years ☐ More than 15 years

Q1.5 Which type of legal structure best describes your business? (Tick correct box)

☐ Sole Proprietor
☐ Company
☐ Partnership
☐ Other, please state _____

Part Two: Mobile Money impact within taxi sector

Q2.1 Do you use the MTN MobileMoney or Vodacom M-Pesa service? (Tick correct box)

☐ Yes ☐ No

Q2.2 Do you use MTN MobileMoney or Vodacom M-Pesa to receive money? (Tick correct box)

☐ Yes ☐ No

Q2.3 If answered "Yes" for above question, what frequency per week? (Tick correct box)

☐ 1-5 times ☐ 6-15 times ☐ 16-30 times ☐ More than 30 times

Q2.4 What is the total Rand amount received in a week? (Tick correct box)

☐ Less than R 500 ☐ R 500 – R 2000 ☐ R 2001 – R 3500 ☐ More than R 3500

Q2.5 Do you use MTN MobileMoney or Vodacom M-Pesa to make payments? (Tick correct box)

☐ Yes ☐ No

Q2.6 If answered "Yes" for above question, what frequency per week? (Tick correct box)

☐ 1-5 times ☐ 6-15 times ☐ 16-30 times ☐ More than 30 times

Q2.7 What is the total Rand amount made in payments a week? (Tick correct box)

☐ Less than R 500 ☐ R 500 – R 2000 ☐ R 2001 – R 3500 ☐ More than R 3500

Q2.8 Do you use the MTN MobileMoney or Vodacom M-Pesa services to store money? (Tick correct box)

☐ Yes ☐ No

Part Three: Efficacy of Mobile Money

Q3.1 What are the charges incurred per week for using the MTN MobileMoney or Vodacom M-Pesa service? (Tick correct box)

☐ Less than R 50 ☐ R 50 – R 100 ☐ R 101 – R 150 ☐ More than R 150

Q3.2 How did you make payments in the past, or currently? (Tick correct box)

☐ Cash
☐ ATM
☐ Electronic Funds Transfer (EFT)
☐ Bank Branch
☐ Other, please state _____

Q3.3 What are the charges incurred per week for the current payment method

☐ Less than R 50 ☐ R 50 – R 100 ☐ R 100 – R 150 ☐ R 150 or more

Q3.4 What are your reasons to consider using the MTN MobileMoney or Vodacom M-Pesa service? (Tick correct column)

	Service Offering	Yes	No	Comments
A	Convenient to use			
B	Cost effective			
C	Safer option to cash			
D	Distribution Network			
E	Network Effect (Users)			

Q3.5 Kindly provide four examples of obstacles that prevent full acceptance of MTN MobileMoney or Vodacom M-Pesa services?

1_____

2_____

3_____

4_____

Part Four: Banking in business

Q4.1 Do you own a bank account? (Tick correct box)

☐ Yes ☐ No

Q4.2 If yes what services do you utilize? (Circle appropriate response)

	Service Offering	Never	Rarely	Sometime	Often	Always
A	Receive Payment	1	2	3	4	5
B	Make Payment	1	2	3	4	5
C	For Loans	1	2	3	4	5
D	Withdrawals	1	2	3	4	5
E	Deposits	1	2	3	4	5
F	Banking Advisory Services	1	2	3	4	5

Q4.3 Rank the banking services below in order of importance to your business? (Circle appropriate response)

	Service Offering	No Importance	Some Importance	Very Important
A	Quick receiving of money	1	2	3
B	Quick sending of money	1	2	3
C	Access to stored money	1	2	3
D	Ease of transacting	1	2	3
E	Banking Advisory Services	1	2	3

Q4.4 Has the MTN MobileMoney or Vodacom M-Pesa service replaced the use of any of the above banking service? (Tick correct column)

	Service Offering	Yes	No	Comments
A	Quick receiving of money			
B	Quick sending of money			
C	Access to stored money			
D	Ease of transacting			
E	Banking Advisory Services			

Q4.5 Can mobile payment systems improve other factors within the running of your business not mentioned above?

1_____

2_____

3_____

4_____

5_____

Thank you for your assistance, it is much appreciated.

APPENDIX B

Questionnaire Data Results Collated

	Respondent Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1.1	**What is the size of your fleet of taxis?**																									
	1 to 5	1	1	1	1	1	1	1	1	1																
	6 to 10										1	1	1	1	1	1	1	1	1	1	1					
	11 to 20																					1	1	1		
	More than 20																								1	1
1.2	**How many employees do you currently have in this business?**																									
	1 to 5	1	1	1	1	1																				
	6 to 10						1	1	1	1	1	1	1	1	1	1										
	11 to 20																1	1	1	1	1	1				
	More than 20																						1	1	1	1
1.3	**What is the volume of customers transported per day in one of your taxis?**																									
		120	140	125	120	135	140	135	135	135	135	120	135	125	120	130	130	120	140	120	120	120	135	140	135	135
1.4	**How long have you owned / operated this business?**																									
	< 1																									
	1 to 5	1												1												
	6 to 15		1	1							1	1	1		1	1	1	1	1	1	1	1				
	More than 15				1	1	1	1	1	1													1	1	1	1
1.5	**Which type of legal structure best describes your business?**																									
	Sole Proprietor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1					
	Company																		1	1				1		1
	Partnership																					1	1		1	
	Other, please state																									
2.1	**Do you use the MTN MobileMoney or Vodacom M-Pesa service?**																									
	Yes	1	1	1	1	1	1				1	1	1	1												
	No							1	1	1					1	1	1	1	1	1	1	1	1	1	1	1
2.2	**Do you use MTN MobileMoney or Vodacom M-Pesa to receive money?**																									

	Yes	1	1	1	1	1	1				1	1	1	1												
	No							1	1	1					1	1	1	1	1	1	1	1	1	1	1	1
2.3	**If answered "Yes" for above question, what frequency per week?**																									
	1-5 times	1					1				1	1	1	1												
	6-15 times		1	1	1	1																				
	16-30 times																									
	More than 30 times																									
2.4	**What is the total Rand amount received in a week?**																									
	Less than R 500	1				1	1				1															
	R 500 – R 2000		1	1	1							1	1	1												
	R 2001 – R 3500																									
	More than R 3500																									
2.5	**Do you use MTN MobileMoney or Vodacom M-Pesa to make payments?**																									
	Yes	1	1	1	1	1					1		1													
	No						1					1		1												
2.6	**If answered "Yes" for above question, what frequency per week?**																									
	1-5 times	1	1	1	1	1					1		1													
	6-15 times																									
	16-30 times																									
	More than 30 times																									
2.7	**What is the total Rand amount made in payments a week?**																									
	Less than R 500	1	1	1	1	1					1		1													
	R 500 – R 2000																									
	R 2001 – R 3500																									
	More than R 3500																									
2.8	**Do you use the MTN MobileMoney or Vodacom M-Pesa services to store money?**																									
	Yes		1		1																					
	No	1		1		1	1				1	1	1	1												
3.1	**What are the charges incurred per**																									

	week for the MTN MobileMoney or Vodacom M-Pesa service																								
	Less than R 50	1	1	1	1	1	1				1	1	1	1											
	R 50 – R 100																								
	R 101 – R 150																								
	More than R 150																								
3.2	**How did you make payments in the past or currently?**																								
	Cash	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	ATM										1	1				1	1	1	1	1	1	1	1	1	
	Electronic Funds Transfer (EFT)																		1						
	Bank Branch																			1	1	1			
	Other, please state																								
3.3	**What are the charges incurred per week for the current payment method**																								
	Less than R 50										1	1				1	1	1	1	1	1	1	1	1	1
	R 50 – R 100																								
	R 101 – R 150																								
	More than R 150																								
3.4	**What are your reasons for considering the MTN MobileMoney or Vodacom M-Pesa service?**																								
	Service Offering																								
A	Convenient to use	1	1	1	1	1	1				0	0	0	1											
B	Cost effective	0	0	0	0	0	0				0	0	0	0											
C	Safer option to cash	1	1	1	1	0	0				1	1	1	1											
D	Distribution Network	1	0	0	1	1	1				1	1	0	1											
E	Network Effect (Users)	1	0	0	1	1	0				1	0	0	0											
3.5	**Kindly provide four examples of obstacles that prevent full acceptance of MTN MobileMoney or Vodacom M-Pesa services?**																								
4.1	**Do you own a bank account?**																								
	Yes										1	1				1	1	1	1	1	1	1	1	1	1
	No	1	1	1	1	1	1	1	1	1			1	1	1										

4.2	**If yes what services do you utilize?**																								
A	Receive Payment									2	2				3	3	2	2	2	3	2	2	2	3	3
B	Make Payment									3	2				2	2	3	2	3	2	3	2	2	3	3
C	For Loans									1	1				2	2	1	1	2	2	1	2	2	2	2
D	Withdrawals									3	2				2	3	3	2	2	2	2	3	2	2	3
E	Deposits									3	2				2	3	3	2	2	3	2	2	3	3	3
F	Banking Advisory Services									2	1				1	2	2	1	1	1	1	1	1	2	2
4.3	**Rank the banking services below in order of importance to your business?**																								
A	Quick receiving of money									2	2				3	3	2	2	2	3	2	2	2	3	3
B	Quick sending of money									2	2				1	2	2	2	3	2	3	1	2	2	3
C	Access to stored money									2	1				1	2	2	1	2	1	2	1	2	2	3
D	Ease of transacting									3	2				2	3	3	2	3	2	3	2	3	3	3
E	Banking Advisory Services									1	1				1	1	1	1	1	1	1	1	1	2	2
4.4	**Has the MTN MobileMoney or Vodacom M-Pesa service replaced the use of any of the above banking service?**																								
A	Quick receiving of money									N	N				N	N	N	N	N	N	N	N	N	N	N
B	Quick sending of money									N	N				N	N	N	N	N	N	N	N	N	N	N
C	Access to stored money									N	N				N	N	N	N	N	N	N	N	N	N	N
D	Ease of transacting									N	N				N	N	N	N	N	N	N	N	N	N	N
E	Banking Advisory Services									N	N				N	N	N	N	N	N	N	N	N	N	N
4.5	**Can mobile payment systems improve other factors within the running of your business not mentioned above?**																								