



**Factors influencing payment convenience in the mini-bus taxi industry in Cape Town,
South Africa**

By

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Signed

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Date

ABSTRACT

While mobile payment applications are progressively becoming more pervasive in South Africa, many regard them as the potential payment system of choice due to their accessibility and ease of use. The recent uptake of digital technology in the commuter transport industry for convenience payment appears not to have been embraced by the mini bus taxi industry in South Africa. Although technology has had a big impact on the metered taxi industry, adoption of technology in the public taxi industry has been rather tenuous.

The aim of this research was to explore the factors influencing the adoption of convenience payment by the mini bus taxi industry. This study utilized a qualitative method with case study approach. The six procedures of drawing a sample were utilized. Stratified sampling was used for the study and the targeted population was taxi owners that have at least two or more taxis operating in the city, taxi drivers and commuters that use taxis as a form of transport. For the purpose of the study the sample size was drawn from three selected taxi ranks in the Cape Town metropolitan area and data collection was done through semi-structured interviews. The ATLAS.ti software was used to analyses data.

Written permission was obtained from the mini bus industry stakeholders and prior approval to record was obtained. Formal ethics approval to conduct the research was obtained from the Faculty of Business Research Ethics Committee at the Cape Peninsula University of Technology. The research guaranteed participants confidentiality, human subject protection, objectivity, integrity and honesty.

The results of the study show there is no business process in place that is followed throughout the industry. The study proposes a model that could be used in the deployment of mobile payments applications for the convenience of the mini bus taxi industry customers. The uptake of such technologies will help bring more value and innovation into the public transport system in South Africa.

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DEDICATION

This thesis is dedicated to my late grandmother Nomaqqile Cecila Luthuli; I wish you were here to celebrate with me every milestone. I will always remember your everlasting love and continue resting in peace Mazikode omhle, Tsibiyane, matshabangu ozalwa ngumaNtolweni iBekekazi.

To all the women that have educated me along the road may you continue educating more women along the way, may you raise your lights higher so that they can brighten the world.

“educate a woman, educate a nation “unknown author

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(Global, 2013)

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ABBREVIATIONS AND ACRONYMS

CRT	Current Reality Tree
FRT	Future Reality Tree
IDT	The Diffusion of Innovation Theory
MST	Magnetic Secure Transmission payment
NFC	Near Field communication payment
NHTS	National Household Travel Survey
NTTT	National Taxi Task Team
PRE's	Provincial Regulatory Entities
SANTACO	South African National Taxi Council
TAM	Technology Acceptance Model
TOC	Theory of Constraints
TRP	Taxi Recapitalisation Programme
WAP	Wireless Applications Protocol

GLOSSARY

Convenience payment	Refers to as a situation where a consumer pays with an electronic payment card rather than paying by cash. It is important to highlight that “convenience payment” in this study refers to any form of device that allows the user to make a commercial payment using an electronic application instead of cash, These devices may not necessarily be mobile phones (Lai and Chuah, 2010).
Informal economy	Refers to all type of economic activities that are accounted for in a country’s accounts but cannot be measured, this is because the business processes of the enterprises or vendors are effectively unknown(Gibbs, 2014).
Mini bus Taxi	Refers mini bus taxi as a small bus that is used for both short and long distance travels with a fixed number of passengers and usually at a fixed fare(Baloyi, 2012)
Mobile payment	Refers to a payment that allows the consumer the use of a mobile phone to pay for a wide range of services and transactions. The charges are usually added to the phone bill(F.Liébana-Cabanillas, Sánchez-Fernández and Muñoz-Leiva, 2014a)
User adoption	Refers to a situation in which a consumer has to accept a new system that is created for a specific need in society(F. J. Liébana-Cabanillas, Sánchez-Fernández and Muñoz-Leiva, 2014).
Violence	Violence can be define as “the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community that either results in or has a high likelihood of resulting in injury, death, psychological harm, mal-development, or deprivation (Abrahams , 2010)

CHAPTER 1: INTRODUCTION

1.1 Title of the study

Factors influencing payment convenience in the mini-bus taxi industry in Cape Town, South Africa.

1.2 Background of the study

This study acknowledges that great progress has been made to improve the state of the taxi industry in the past two decades since the loopholes the Road and Transport Act of 1977(Fourie, 2003). The mini bus industry is still behind in its competitiveness in the transport sector due to lack of effective and time saving payment methods (Schalekamp and Behrens, 2010; Dahlberg, Guo and Ondrus, 2015).

The taxi industry makes a big contribution to the informal economy in South Africa, although the industry does not pay any taxes and its employees are not registered under labour laws. The mini bus taxi industry transports 65% of commuters daily in the public sector and employs over 185 000 workers plus an additional of 150 000 indirect workers, yet a question regarding whether the industry is properly regulated and taxed remain unanswered (Schalekamp and Behrens, 2010; Tsele, 2017).

The public transport market is also shared with other forms of transport such as trains, buses and private transporters such as Uber, Taxify, metered taxis etc. Since the introduction of MyCiTi buses in May 2010, the service has already claimed 10% of the market share of in the public transport sector (Mugore, 2014). Uber and Taxify are the biggest threat to mini bus taxi industry as they are also competing to get a share of the market.

Trains, buses, Uber, Taxify, and metered Taxis utilize advance paying methods as they not only allow their customers to pay in cash but also to pay through convenience payment applications and also continue introducing new innovative technologies in order to retain their customers base. MyCiTi has gone out of its way to make sure that that they retain their customer by introducing Wi-Fi in their buses. The introduction of MyCiTi has caused a huge competitive threat for the mini bus taxi industry as they have had to reduce the number of taxis they deploy on certain routes(Mugore, 2014). According to Richter, (2017) the mini-bus taxi industry also tried to introduce the Wi-

Taxi which was planned to roll out in September 2014 , which was rejected by the stakeholders of this industry .

1.3 Purpose of the study

This study is motivated by one fundamental argument. It sought to explore the factors influencing the adoption of convenience payment systems in the mini bus taxi industry. This was achieved through an exploration of the factors influencing the adoption of convenience payment in the taxi industry by selected mini bus taxi ranks in Cape Town as a case study. The overall goal of the study was then to explore two themes and that was:

- I. The nature of the operations of the mini bus taxi industry.
- II. The possibility of introducing mobile payment applications in the mini bus taxi industry.

Not much attention has been given in literature to the potential that mobile payment application has in r the mini bus taxi industry in response to emerging advanced customer payment technologies. This study explored the landscape for mobile payment application in Cape Town, user acceptance of the mini bus stakeholder's success and sustainability which ultimately contributes to the development of the South African economy as transport is very important in any country's economic development.

1.4 Rationale and significance of the study

The mini-bus taxi industry is the leading form of public transport in South Africa and it therefore has a very important role to play in the economy. Besides transporting millions of commuters on a daily basis, it also makes a major contribution towards employment creation and poverty alleviation(Consultancy African Intelligence, 2013).

The major significance of this study is through its contribution to the improvement of customer services in the taxi industry. In addition, the study also adds value to the field of technology acceptance and innovation. It makes these contributions through (1) an exploration into the problems faced by mini bus taxi industry thereby contributing more knowledge to our understanding of the minibus taxi industry; (2) applying qualitative methodological approaches to the study of taxi industry and user's acceptance system in response to work done recently in the general field of convenience payment; and (3) generating a model of convenience payment for the taxi industry in order to improve

issues of customer relationships, reduce violence and improving the general safety of commuters.

Much has been accomplished in the past two decades to develop policies and procedures to improve the services of the mini bus taxis in the transport sector but still more need to be done especially in the area of adoption of advanced technologies for convenience payment of services. This is in direct response to the fact that the mini bus taxi industry ferries over 65% of the commuters using the public transport sector (Tsele, 2017).

1.5 Research design

The research design and approach for this study served to plan, organize and execute the study in order to maximize the validity of the findings (Klopper, 2012). Yin and Campbell, (2007) state that the research design should be used as a procedure to move from here to there, and that is moving from a point where there is an initial question to a point where there is some sort of answers to that question.

This study was designed to be a qualitative research using a single case study approach with multiple units of analysis to collect data. Botha, Westhuizen and Swardt, (2005) highlighted that the most suitable application of qualitative to use when conducting a research in instructional technology is a case study, thus why this study utilized this instrument. Even though the term “case study” has multiple meaning, the commonly used one is “A case study is an empirical inquiry that investigate a contemporary phenomenon within its real-life context, especially when boundaries between phenomenon & context are not clear”(Yin and Campbell, 2007,p.24). The case study is also usually a description of a process experienced or a structure of a single institution in order to answer the combination of “what and “why” questions.

The study explored how the absence of fare payment business processes have influenced technology adoption in the mini bus tax industry by investigating two taxi industries that are under Ward 1 in the Cape Town metropolitan area. The interviews were conducted using semi structured questions to ensure the answers or responses are focused and relevant.

The case study strategy was used because of its ability to help understand human beings in a given social context through interpreting their behaviour as a single event. The mini bus taxi industry has no clear business processes in place and the use of

case study was very useful in order to understand the conditions in which the industry operates especially in the context of trying to propose a mobile applications fare payment system.

1.6 Research approach

According to Amaratunga et al., (2002) and Meert et al., (2009) research methodology can be stated as a strategy to enquiry which is the best to use in highlighting assumptions, research design and data collection. The typical research methods used are qualitative and quantitative. Qualitative research methodology was developed for the study of social and culture phenomena while quantitative research methodology focuses on the study of the natural phenomena. It is very important to note that both these methodologies are used in the field of research and neither of them is better than the other. Some study may make use of both methodologies based on the nature of the study. (Bryman & Burgess, 1994).

Denzin and Lincoln (2003) state that qualitative research contains an interpretive, naturalistic approach to its subject of matter, it attempts to understand it or to interpret phenomena in line of the meaning it brings to people. Qualitative research approach explores and disclose issues about the problem at hand because there is usually limited knowledge about it. (Meert *et al.*, 2009) argues that qualitative research methodology helps in the understanding of people, their social and cultural context in which they live in. Qualitative research approach allows for different enquiry strategies and data collection instruments to be used (Creswell, 2003). Data collection sources can include observation, participant observation (which can be regarded as fieldwork) and interviews (Meert et al., 2009).

Quantitative research approach utilizes surveys, questionnaires and experiments as data collection instruments(Amaratunga *et al.*, 2002).. Quantitative research make use of numerical or statistical data to present statistical results while qualitative research makes use of words to narrate and attempt to understand the phenomena being studied.

The nature of this study seeks to explore factors influencing adoption of technology in the mini bus taxi industry which is why the best method used for this study was the qualitative methodology. The best methodology to be employed when studying human behaviour is qualitative methodology (Denzin & Lincoln, 2008). The important focus of this study was to observe, investigate and document in detail the core factors that the

taxi owner, the taxi driver and commuters using a mini-bus taxi highlight as key problematic issues when it comes to adoption /acceptance of technology in the industry. It was also important to focus on how investing in business processes would have an impact in decision making processes in the industry.

Table 1. 1: Overview of research problem and research questions

Research Problem	The recent uptake of digital technology in the commuter industry for convenience payment appears not to be embraced by the mini-bus taxi industry in South Africa. The South African National council state that the taxi industry employed more than 600,000 people and transported 15 million commuters per day in 2016 (Tsele, 2017). Although technology has had a big impact on the metered taxi industry, adoption of technology in the public taxi industry with estimated annual revenue of R90 billion has been rather tenuous but this is likely to change soon (Tsele, 2017). While mobile payment application is still in its infantile stage, they are progressively becoming more pervasive in South Africa and many regards these as the potential payment system of choice due to its accessibility and ease of use(Liébana-Cabanillas and Lara-Rubio, 2017). The purpose of this study is therefore to explore which attributes, features and characteristics of convenience payments application, the users of the application and taxis using the application have a significant influence on the acceptance of the convenience payments.	
Research Question	What are factors influencing the adoption of convenience payment by the mini-bus taxi industry	
Research Sub-Questions	Research method(s)	Objectives
What are the factors preventing mini-bus taxis to use convenience payment	Literature analysis Case studies Semi-structured interviews	To identify the factors preventing mini-bus taxis to use convenience payment
What are the causes leading to users to have limited confidence in new technologies?	Literature analysis Case studies Semi-structured interviews	To determine the causes leading to users to have limited confidence in new technologies.
What are the business processes of payment of fares in the mini-bus taxi industry?	Literature analysis Case studies Semi-structured interviews	To investigate the business processes of the mini-bus taxi industry in relations to payment of fares.
How would payment technologies affect the mini-bus taxi industry?	Literature analysis Case studies Semi-structured interviews	To determine the impact of payment technologies on the mini-bus taxi industry. Thus, proposing guidelines for the adoption of convenience payment in the mini-bus taxi industry

1.7 Limitations of the research

Proof about human experience has natural limitation compared to evidence about human behaviour, this is because evidence of experience depends on the participant willingness and ability to share (Polkinghorne, 2005). Due to the constant increasing rate of corruption, violence and the sensibility of handling information within the taxi industry, this could have limited the level of honesty of the responses provided by the participants especially taxi owners and taxi drivers. The issue competition for routes

and the ruthlessness of handling conflicts among taxi owners has created issues of fear among drivers with the fear that the information they give in might get to the wrong hands costing them their jobs and worsening the tensions in the industry.

1.8 Thesis structure.

The five chapters of this study includes: The introduction, literature review, research design and methodology, findings and conclusion.

Chapter 1: Introduction

The first chapter provides the background and the setting of the research, this will highlight the statement of problem, the significance of the study, the research questions, limitation and delimitations of the study and definition of the key words.

Chapter 2: Literature Review

The second chapter looked at the literature review of the broad virility of the literature that is related to the study. This chapter also provided argumentative debates around the topic as well as how they are used in this research.

Chapter 3: Research design and methodology

This chapter outlines the population, sample and sampling methods that were used for this study and it also outlines the data collection/instrument process and how the data was ill analysed.

Chapter 4: Findings

This chapter narrated the actual findings of the study. The reports, tables and narratives that describes the most important and relevant information are discussed in this chapter.

Chapter 5: Conclusion

This chapter provides guideline and framework through conclusions and recommendations drawn from findings. this chapter will be used to articulate the main points presented in the study.

2. Summary of the study

This study explored the factors influencing the adoption of payment convenience applications in the mini bus taxi industry, the academic arena of this research study is the focus on mobile payment applications. Key to this study is the notion of technology

adoption that can assist the mini bus taxi in supporting mobile payment application towards customer satisfaction and enhanced competitiveness.

In proposing the guidelines for the adoption of payment convenience applications in the mini bus taxi industry in Cape town, South Africa, the focus was on:

- I. The nature of the operations of the mini bus taxi industry.
- II. The possibility of introducing mobile payment applications in the mini bus taxi industry.

Furthermore, the end goal of this study was to propose a model for the adoption of payment convenience applications in the mini bus taxi industry. The significance of the research lies in the contribution that the model will make to the mini bus taxi industry' success and sustainability, which ultimately contributes to the development of the South African economy and help create more jobs and guarantee stable incomes for employees in the sector.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The background of this study seems to suggest that the mini bus taxi industry plays a vital role in the informal economy of South Africa. A distinct aspect of the mini bus taxi industry is that its business model is largely based on cash transactions between the passenger and taxi driver. This contrasts with the metered taxi industry which makes use of convenient or mobile payment methods. The literature review aims to critically analyse the body of knowledge to establish factors influencing payment applications in the mini bus taxi industry in Cape Town, South Africa.

This study suggests that when looking at the integration of any payment system in the mini bus taxi industry it is important to understand the way that this industry operates. The Cultural Dimension Theory and the Theory of Constraints Thinking Process were used in the study to gain insight into the operations of the mini bus taxi industry and on how the integration of a proposed model can be implemented within the industry.

Given this approach, the processes outlined in the Cultural Dimension Theory as indicated in Figure 2.1, the route of enquiry of the literature study was to uncover (1) the business processes of the mini bus taxi industry and (2) mobile payment applications. In the study the terms “convenience payment” and “mobile payment” were used interchangeably. Mobile payment is, however, the most appropriate since there is no clear definition or research into the concept of “convenience payment”.

The two tenets were individually unpacked to provide insights and propositions as how they would intersect at a theoretical level.

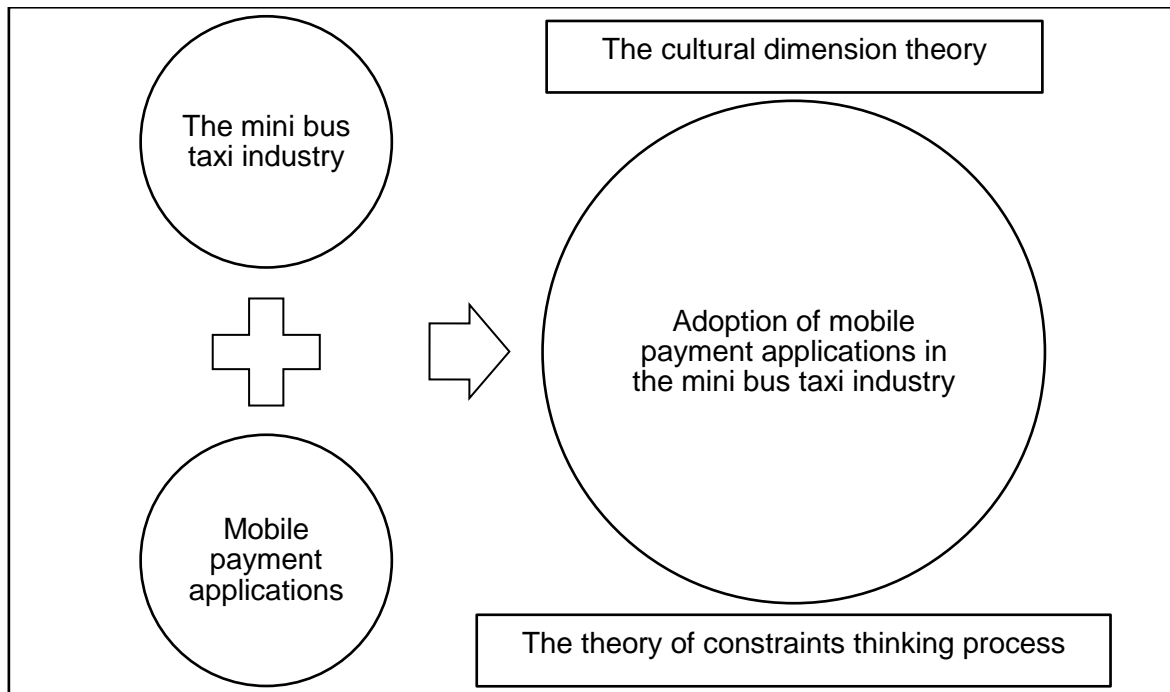


Figure 2. 1: The route of enquiry of this study

TENET ONE: The mini bus taxi industry

The topics covered in this section include the following:

- I. Public transport in South Africa
- II. History of the mini bus taxi industry.
- III. Mini bus taxi industry stakeholders
- IV. The current role of the mini bus taxi industry in the public transport system in South Africa
- V. The business model of the mini bus taxi industry in relation to payment of fares

TENET TWO: Mobile payment applications

The topics covered in this section include the following:

- I. History of mobile payment
- II. Different types of mobile payment application
- III. The use of mobile payment applications in public transport South Africa and internationally.
- IV. Barriers to the adoption of mobile payment
- V. Users experience of different types of mobile payment applications in South Africa and internationally.

At the end of this review an intersection of the two centralised ideas in developed with the idea of bringing convenience through mobile payment applications that would support a better business operations model in the mini bus taxi industry in South Africa.

2.2 Conceptualization of terms

Terms such as convenience payment, informal economy, mini bus taxi, mobile payment, taxi war, user adoption and violence are used often in this study. It is, therefore, important to define their significance in this research.

Convenience payment

The Oxford Online Dictionary describes “convenience” as a state of being able to proceed with something without difficulty. According to Lai and Chuah,(2010) “convenience payment” can also be referred to as a situation where a consumer pays with an electronic payment card rather than paying by cash. It is important to highlight that “convenience payment” in this study refers to any form of device that allows the user to make a commercial payment using an electronic application instead of cash.

Informal economy

The informal sector can be describe as “a process of income generation characterized by one central feature, it is unregulated by the institution of society in a legal and social environment in which similar activities are regulated” (Gold & Newyn, 2019).

Furthermore, Gibbs (2014) points out that the informal sector includes all type of economic activities that are accounted for in a country’s accounts but cannot be measured, this is because the business processes of the enterprises or vendors are effectively unknown.

This study adopted the definition of the informal sector for this study as any type of economic activity that operates with an informal business process approach and that has no proper regulations to be followed by authorities where other activities of the similar nature are regulated.

Mini bus Taxi

Moyeka (2006) describe a mini bus taxi as a small bus that is used for both short and long distance travels with a fixed number of passengers and usually at a fixed fare. Slyvia (1996) and Baloyi (2009) make use of words such as “kombi, black taxi, mini

bus” in order to distinguish a mini bus taxi from a metered taxi. The mini bus taxi operates for a commercial gain.

The mini bus transports passengers on a fixed route with a fixed fare just like all forms of public transport but the only difference is that this mode of transportation does not operate on a timetable like formal buses and trains.

Mobile payment

Mobile payment also referred to as “m-payment”, is a method that allows the consumer the use of a mobile phone to pay for a wide range of services and transactions (Zhou, Lu and Wang, 2010). The charges are usually added to the phone bill. Zhou, Lu and Wang (2010); Liébana-Cabanillas, Sánchez-Fernández and Muñoz-Leiva (2014) assert that m-payment applications allow the consumer to complete their purchase payments in a safer, faster and more convenient transactions at anytime and anywhere

User adoption

User adoption refers to a situation in which a consumer has to accept a new system that is created for a specific need in society (F. J. Liébana-Cabanillas, Sánchez-Fernández and Muñoz-Leiva, 2014). It is usually an integration from an old system to a much more advanced and efficient system.

Violence

Violence can be define as “the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community that either results in or has a high likelihood of resulting in injury, death, psychological harm, mal-development, or deprivation” (Abrahams , 2010, p. 495). The violence in the mini bus taxi industry can be classified into two categories namely: criminal violence and structural violence (Abrahams , 2010)

Criminal violence - used to describe activities within the taxi industry that are identified as having ‘criminal characteristics’ they are usually based on financial extortion.

Structural violence- related to conflicts with in the industry in relations to routes and intra-association differences that are usually caused by the lack of democratic practices in this industry.

2.3 TENET ONE: Mini bus taxi industry

I. Public transport in South Africa

Transportation is an essential part of the economic development of any country. In most countries transportation is usually divided into two which is private transport and public transport and South Africa is no exception in this regard. There are different methods of transport in South Africa which include road, railway, air and water.

Aropet (2017) points out that the public transport in South Africa predominantly comprises of three modes of transport namely:

- The traditional commuter rail system which unfortunately is always overcrowded and it has a lack of constant structure in terms of schedules. At the other end of the scale, the Gautrain high speed rail between Johannesburg, Pretoria and Oliver Tambo international Airport industry operates much more efficiently. This mode of transport makes use of the e-ticketing payment system.
- The subsidized and unsubsidized commuter bus modes which also includes the two bus rapid transport (BRT) system in cape town. This is considered to be the safer option in comparison to other forms of public transport, and they make use of e-ticketing payment systems. The users purchase tickets based on different packages where the ticket is either tapped or shown to the driver before entering the bus. As much as this is the safest and much more convenient choice it does not cover all routes
- The third mode of transport is the 16-seater mini bus taxis. They cover many routes that are not easily accessible by the other modes of transport and carries the majority of South Africans. This is the only mode of transport in the public space that still uses a cash-only payment system.

According to the 2013 National Household Travel Survey (NHTS), the mini bus taxi industry had the largest share in the market by transporting 68.8% of South African citizens daily, followed by the commuter bus which transported (21.1%) of South Africans daily and lastly the rail system which transported (9.9%). Because of these statistics, this study focuses on the mini bus taxi industry and the best way to explain this industry is by making use of the Cultural Dimension Theory.

2.4 Cultural Dimension Theory

The best way to describe the culture of the mini bus taxi industry is through Hofstede Dimensioning Culture, as for many years the mini bus taxi industry has been operating merely on the cultural side than on the business practice side. Culture has been described in many ways by different authors but this study focused on the definition provided by Hofstede (2011: p.3) that “culture is the collective programming of the mind that distinguishes the members of one group or category of people from the other “

Hofstede (2011) breaks down the cultural dimension theory in six components namely: power distance, uncertainty avoidance index, collectivism vs individualism, masculinity vs femininity, long term vs short term orientation and restraint vs indulgence. The study applies these components and link them to better understand how the mini bus taxi industry is currently operating.

Power distance

According to Hofstede (2011) power distance is the reluctance of different solutions to the basic problems of human inequality. Power distance is one of the huge problem in the mini bus taxi industry, where people who have been in the industry much longer and have a huge number of mini bus taxis operating in the city turn to think that they are more powerful than the rest of the owners with smaller fleet. They are usually the decision makers in this industry and for any changes to take place in the industry they have to be consulted as they have greater influence.

Collectivism vs individualism

The mini bus taxi industry has been proven to operate on the basis of collectivism rather than that of individualism. This has been proven on many situations as the stakeholders of this industry would hold the country at ransom by blocking most of the main roads when they are striking (Kassen, 2019). This is one industry that stand together and support each other when there is a need to and this can be a huge problem when it comes to try to implement new change. It would mean that in order to be able to introduce or integrate any new system one needs to have the buy-in from most members within the industry as task usually prevails over relationship.

Uncertainty avoidance

The dimension of uncertainty avoidance speaks more to users of the application and their tolerance of ambiguity. To some extent it also has a huge impact on both the mini bus taxi driver and the mini bus taxi owner as they are the first people to encounter any change, hence it is of importance to note that uncertainty avoidance is not the same as risk avoidance. When it comes to the use of technology there are many uncertainties that come with and most of the time the users are always worried about the risks attached to it, mostly in relation to issues of privacy and confidentiality of their information. Generally, when thinking of introducing any form of change one has to always investigate how comfortable is the user with uncertainty.

Femininity vs Masculinity

Masculinity turns to play a huge role in the mini bus taxi industry as it male dominated and very few women are in existence, and furthermore women have to prove to be powerful in order to survive operating in this industry(Gibbs, 2014). Power within the industry which is exerted through fear is very important and one has to show sort of control not to be regarded as weak both by your peers and drivers. (Hofstede, 2011)state that in most countries where masculinity is practiced there is a huge gap between men's values and women's values as men are treated more superior.

Short-term vs long term orientation

The mini bus taxi industry operations are short term and operate on a day by day approach. This is proven through the employment practice in the industry, as does not follow the normal employment processes of the Labour Act of South Africa (Fourie, 2003; Consultancy African Intelligence, 2013; Fobosi, 2019) .The mini bus taxi drivers are usually paid on a weekly basis or on a commission, and this puts the drivers in a lot of pressure as they have to meet agreed daily targets.

There are never long term structural plans for most owners in this industry, which means that the most important issues are in the past rather planning for the future. The focus is more on the daily fare intakes rather than taking a long term view of growing the business. This also affects issues like the maintenance of the vehicles as they are usually maintained on an ad hoc basis. It is only when the car breaks down that it is taken to a mechanic and as a result there are complains about the quality of

service in the industry which leads to an increase in accidents over the years (Wasserma, 2019) .

The mini bus taxi industry is an economically sustainable and plays a big part in the informal economy of the state (Van Zyl, 2009). This is mainly because the services provided by the industry are at affordable rates to commuters and that they are convenient.

Figure 2.2. illustrates that there is a choice that the stakeholder has to make on whether to spend money on things that generate profit or not. The taxi owners can spend money on issues like safety and entertainment although not generating immediate profits this t can attract customers in a long run. On the other hand, the stakeholders can choose to maximise profit by ignoring all other costs that goes towards maintenance and entertainments of the vehicles. This option then puts the commuter’s life in danger and can also drive away commuters leading to loss of profits.

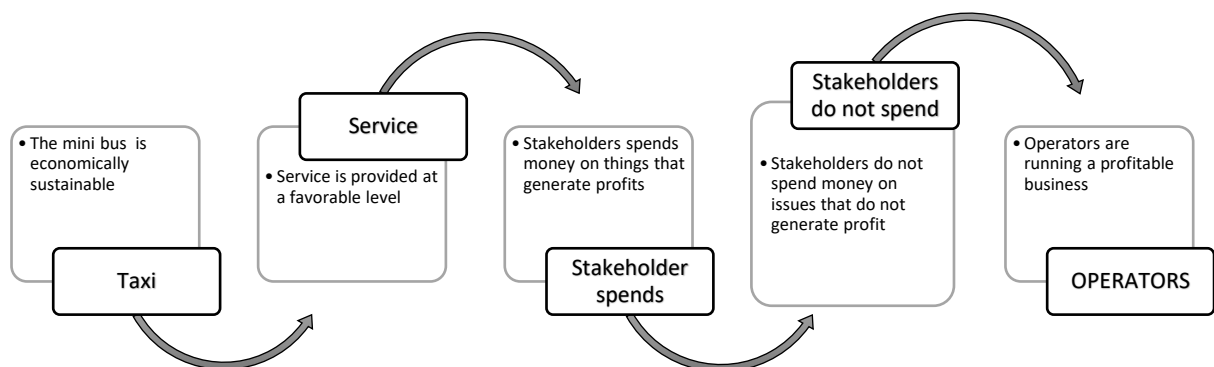


Figure 2. 2: Breakdown of the mini bus taxi industry (Van Zyl, 2009)

2.4.1 History of the mini bus taxi industry

The mini bus taxi industry history development can be divided into four periods: the 1977 to 1987, 1987 to 1994, 1994 To 1999 and from 1999 to date.

1977-1987

The mini bus taxi industry can be linked with to the apartheid era as black people in South Africa could not get operating permits the 1960s. During the 1970’s a loophole

in the Road Act of 1977 was realized and this gave black people in South Africa an opportunity to go into the market (Fourie and Fourie, 2003b). The industry is accounted for 65% of all public transport of the daily commuter trips (Oosthuizen and Mhambi,2001, Barret,2005). In this period, the taxi industry in South Africa was struggling to be recognised as a public transport operator. This led the government to establish the Breda Commission of Inquiry into Transport Deregulation in 1977. The results of the Breda Commission highlighted that South Africa was at the stage in its economic and industrial development to be forced to move towards free competition in the transportation sector.

These results then allowed for the formation of Road Transportation Act of 1977 which allowed for the entry of black South African operators into the sector easily. The act highlighted that the mini bus can be defined as motor vehicle that carry not more than 9 people including the driver seated, which meant that an operator can only carry 8 passengers. It was in this period that the industry started to grow massively but there were delays in the issuing of taxi permits leading most operators to start operations illegally.

1987-1994

The period 1987 to 1994 was characterized by the deregulation of the industry. This is the period where most permits were issued and this led to start of taxi violence as owners were competing and fighting over routes. To try and control the situation the government issued a new act in 1988, the Transport Deregulation Act in conjunction with the White Paper on Transport Policy that had been issued tabled in January 1987.

1994-1999

The conflict and violence started to be evident in the industry and the safety of the passengers started to be of concern. The vehicles that started operations were no longer in good condition. The working conditions were not conducive for the drivers this led insurance companies to charge high finance and insurance premiums. The government intervened in order improve the industry by finding ways to improve the road safety of commuter. The government then established the National Taxi Task Team(NTTT) in 1995 in attempt to improve the industry. This caused a huge resistance

from the people that had a big stake in this industry which led to increase in violence outbreak in the year 1995 to 1999.

Another intervention by the government to improve the industry was through the establishment of the Taxi Registrars Officials and Operating Licensing Transportation Boards which were deployed to all South Africa provinces. Their role was to ensure that all mini bus taxi operators are registered with the Taxi Registrar and are issued with operating licences for specific routes. This was seen as way to bring control to the industry and minimise conflicts.

The Operating Licensing Transport Board was replaced by the Provincial Regulatory Entities (PRE's) which was established to deal with issues of operating licenses, monitor and oversee public transport in relevant provinces throughout South Africa. This meant that most provinces operated differently when it came to the life span of operation licenses, Gauteng and the Western Cape had 5 years' operating life span while other provinces had 7 years.

1999-2020

To try and bring the mini bus taxi industry in same sort of control and regulation another structure was introduced in the year 1999 known as Taxi Recapitalisation Programme (TRP). The objective of the TRP was to phase out the old vehicles which were considered unsafe and unreliable with the aim to improve the poor road safety of commuters associated with this industry. This also meant that they had to provide capital subsidy to operators in form of scrapping allowance of their old cars for the purchase of new purposed – built taxi vehicles.

The industry has increased massively over the past two decades with 127 000 mini bus operating on fixed commuter corridors. The industry has assisted with job creation as the majority of mini bus taxis are not owner-driven. The industry has created over 185 000 direct jobs and an additional 150 000 indirect jobs, the employment ratio is 1 :1.5 (Schalekamp and Behrens, 2010; Tsele, 2017)

Tsele (2017) argues that this multi-billion-rand industry that serves 15 million commuters per day is still unregulated and faces issues such as unlicensed vehicles violence and general safety concerns for commuters. The industry is part of the informal economy as the majority of the owners do not register for tax and that the employees are not registered under labour (Walters, 2013).

2.4.2 Mini bus taxi industry stakeholders

Gule (2009) states that different industries have their own trade guides and protocols for the sale of goods and services. The mini bus taxi industry does not however have any standard guides and manuals. Commuters for example use hand signals to indicate a desired travel route to the drivers and the fare is usually based on the route travelled. These road signals are usually very difficult to master for people that are not staying in a particular area. Therefore, it is important to generate comprehensive protocols and guides for the different stakeholders in the mini bus taxi industry.

According to Barrett (2003) the key stakeholders of this industry comprises of the taxi owner, taxi driver or operators, fare collectors also known as door operators, queue marshals and car washers.

Taxi owners – these are the owners of the mini bus taxis; they usually drive them but rather employ someone to driver for them.

Taxi drivers - these are usually employed by the owner and a paid a wage on four different ways according Goldman (2003) as per an agreement with the owner

- Drivers can get paid on a fixed percentage of the week's taking.
- Driver can receive a basic wage
- Driver pays a targeted amount by the owner and keep the rest of the income

Fare collectors- these are usually the people that opens and closes the doors for the commuters and collect the fares on behalf of taxi drivers.

Queue marshals- these individuals are usually employed by the local taxi association operating in that place and are paid a fixed salary. They usually manage the passengers and vehicle related procedures.

Commuters – These are the individuals that make use of the mini bus as a form transportation.

2.4.3 Current role of mini bus taxi industry in the public transport system in South Africa

The industry is often painted as a chaotic one with very unsafe measures for commuters and one that is always leaving a trail of dead bodies in its wake. However, from another angle the industry represents a model of a successful black economic self-empowerment. This is the only industry that is entirely controlled by black people through the ownership of a taxi.

The mini bus taxi industry remains a critical pillar of South Africa public transport sector (Fourie, 2003; Ingle, 2009; Fobosi, 2019). At first the mini bus taxi industry was regarded as a very easy and inexpensive way to start business in South Africa. This was due to the fact that the industry was unregulated (Consultancy African Intelligence, 2013). Due to the easy entry conditions the industry was seen as contributing to reducing the unemployment rate and helping in poverty alleviation in the country and that more people could easily become small business owners.

The mini bus taxi industry transports masses of people in the lower income groups, as it is the most available and most affordable one to the public (Lombard *et al.*, 2001; Fobosi, 2019). The mini bus taxis operate till late hours and also offers a late night services to accommodate the masses that work till late hours in the retail and other sectors. At times the industry also offers special services to the communities on occasions where transportation is required. This makes it the most popular mode form of transport in the urban areas.

As much as the industry has a positive contribution to the most urban areas it also has some negative aspects. Lomme (2008) points out that a significant number of mini buses operating on the roads are operating illegally leading to the chaotic nature of the industry. The industry is not very safe for commuter's other road users. It has been noted that 3 out of 36 lives lost on the national roads are due to mini bus taxis related incidents (Wasserma, 2019). This leads to the public views that mini bus taxis are unsafe and operating in an abusive manner and have no respect for their passengers.

Fobosi (2013) argues that, the mini bus taxi industry contributes to the informal economy as it does not pay tax and its employees are not registered under any labour laws and is considered as one of the most exploitative in terms of the labour relations between the owners and drivers where owners are bent on maximising on profits at all cost. Because of this the taxi drivers have to frequently operate at a high speed than

the normal stated limit speed in order to cut travel time and increase the number of loads per day. The mini bus taxis are often overloaded. The industry is notorious for its deadly violence and “taxi wars” which have been witnessed in the past 12 years.

Current Business model of the mini bus taxi industry in relation to fares

Figure 2.3 depicts the process that is followed in collecting fares during a trip of mini bus taxi. The fare is collected from a customer to the fare-collector also known as a “door operator” to enable the driver to focus on driving the vehicle. At the end of every trip once and when all the fares have been collected the money in note form is handed over to the driver and the assistant keeps the coins for change purposes.

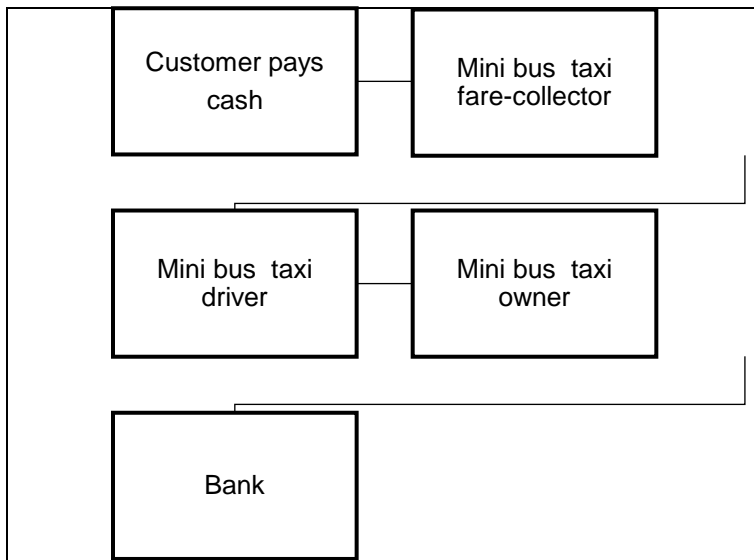


Figure 2. 3: current business model

At the end of the day the driver collates all the income for the day and hands it to the owner based on some pre-existing agreements. It has been noted that the owners lose between 35% - 50% of fares that are pocketed by drivers through a cash-based system (Ford and Bull, 1989; Tsele, 2017). The money is then deposited by the owner into a bank account. It is further argued by Tsele (2017) that because the mini bus taxi industry is not tax regulated and hence there are no audit trail to be able to check how much income they generate.

Therefore, it can be argued that while the mini bus taxi industry has a vital role to play in the South African economy it still operates in an informal way and is beset by violence. There are gaps in terms of finding solutions to control and monitor the industry so that it can operate more formally and reduce the levels of problems faced by this industry.

2.5 Theory of constraints (TOC)

In order to effect any changes in the organisation of the industry, the study employed on the Theory of Constraints (TOC) to map out possible solutions. TOC is a multi-faceted systems methodology that was developed by Goldratt (1990) to assist people and organisation to think about their problems, develop breakthrough solutions and implement those solutions successfully. TOC methodology helps to address the key questions in any change process, namely; what to change, what to change to, and how to bring about the change? The following tools are also formalized as part of the TOC

- **Current Reality Tree(CRT):** it is used to show the current state which is unsatisfactory and needs improvement
- **Evaporating Cloud Tree:** it helps to identify the specific changes that need improvement.
- **Future Reality Tree(FRT):** it shows the desired future state
- **Strategy and Tactics Tree:** it provides an action plan for improvement by showing an implementation plan in order to achieve the future state

The Cultural Dimension Theory has assisted in unpacking the challenges in the mini bus taxi industry in South Africa. It is then important to explore how the integration of a mobile payment application system in the industry can be achieved through acceptance by key stakeholders.

As shown in Figure 2.4 when applying the Theory of Constraint to making changes in a given environment, several questions should be asked and these relate to (1) What to change? (2) What to change to? And (3) How to cause the change?

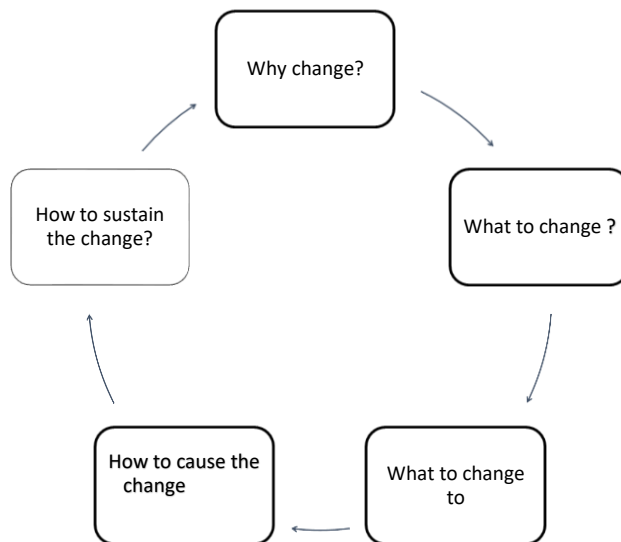


Figure 2. 4: Theory of constraint thinking process Model

(TOC)(‘Using_the_Theory_of_Constraints_to_Assis’, no date) (Dettmer, 1997)

The current reality tree helps to identify that there is a lack of business process when it comes to payment of fares and this is a core problem in mini bus taxi industry (Dettmer, 1997). This industry doesn’t make use of any convenience payment applications. This industry falls under the informal sector therefore the use of the evaporating cloud tree is of importance. This study sees the use of mobile payment application as a win/win solution for all the stakeholders involved in this industry

2.6 TENET TWO: Mobile payment

Mobile payment also known as (M-payment)- allows the consumer the use of a mobile phone to pay for a wide range of services and transactions. The charges are usually added to the phone bill. Liébana-Cabanillas (2014) argues that m-payment allows the consumer to complete their purchase payments in a safer faster and more convenience transactions at anytime and anywhere.

II. History of Mobile payment

Throughout history humans have always practiced some sort of payment system for goods and services they sort. One thing that can be agreed on is that human beings have always preferred a payment system that is convenient and simple, as can be seen through the evolution of payment systems over years (Figure 2.5).

The evolution of electronic payment can be dated from the late 1970's to the mid 1980 when people used a videotext system, which was a home banking system and required landlines and television set with videotext system in order to access balance on the account, to make transfer and also to make payment.

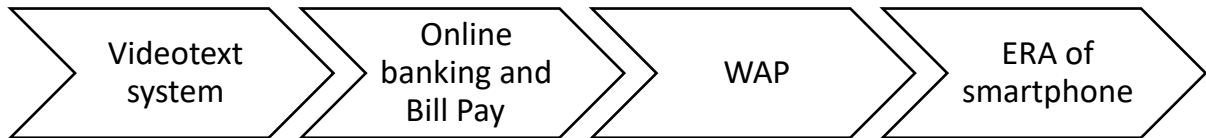


Figure 2. 5: Evolution of mobile payment

In 1994, online banking and bill pay was introduced, this new system meant that one can be able to have access to their accounts and make purchases anytime and anywhere as long as they have access to a computer. Then in 1997 Wireless Applications Protocol(WAP) was introduced as the first mobile banking system operated through sms messaging. And today's mobile payments are largely based on smartphones.

Table 2.1 provides an overview of how electronic payment systems have advanced over the years.

YEAR	Growth	Entertainment	Technology	Banking and money
1997		The era of mobile commerce begins		
1998		First digital content downloaded via a mobile phone		
1999		Buying movie tickets via mobile phone was launched		the launch of the major mobile commerce platforms
2000		Air travellers started using mobile phones to arrange travels and confirm loyalty points	Introduction of mobile commerce applications to be used with internet-enabled cell phones	Mobile wallet concept emerges in Africa
2001	Mobile commerce transactions reach \$ 2.4 billion worldwide	First online mobile commerce system was tested through ordering pizza		
2002	Industry standards for mobile commerce was developed			Billing using WAP was launched
2003	95 million cell phone user worldwide make purchases via their mobile phones		The first donation system via sms was launched	
2004	Penetration of Multimedia mobile phones reach an estimated 49% worldwide			
2005	Up to 100 new mobile commerce companies launched in Europe every month		The launch of NFC (near field communication) enabled mobile phone	
2006			Subscribers begin to order songs from jukeboxes via text messages	PayPal mobile launched
2007			The first iPhone was launched and the trail of mobile payment using a fingerprint recognition technology begin	The launch of WAP billing platforms could be used on Mobile network
2008			The introduction of the first Android phone	Trails for contactless mobile payment begin in the U.S
2009	The mobile payment market is worth \$ 69 billion			Card reader was introduced that allowed for credit cards payments
				Mobile banking reach 12 million in the U.S
2010	Profit on mobile commerce reach 5 billion	A Mercedes-Benz of \$240,000 was purchased on eBay using a mobile phone		<ul style="list-style-type: none"> • Sprint mobile wallet was launched • Mobile users spent over \$100 per month on mobile purchases
2011	Annual mobile payment purchases worldwide reach \$240 billion	Smartphone penetration in U.S passes 40%	NFC available to 1/3 of the world	GoPayment services with a card reader devices could be used on mobile devices
	95% of smart phone users in 30 countries worldwide made purchase using their smart phones		The launch of google wallet	American express partnered with Verizon wireless to offer mobile payment using the serves payment
2014-present			Apple pay was launched. Android and Samsung pay was launched the following year	

Table 2. 1 : History of mobile payment (Global, 2013)

2.1.3 Different types of mobile payment

There are three type of mobile payment namely;

- Mobile Commerce(mCOMMERCE) also known as mobile Point of Sale
- Mobile wallet (mWALLET) also known as digital wallet
- Mobile Payment (mPAYMENT) known as remote payment

Mobile Commerce (mCOMMERCE)This form of mobile payment allows the customer to make use of a contactless method of payment for goods in store. Users can use their mobile devices to complete a transaction instead of the normal card system (Bidgoli, 2019). Some of example of this option as describe by Bidgoli (2019) includes but not limited to;

- **Near Field communication payment (NFC)** -this form of payment has grown rapidly in UK. This contactless card machine includes Apple Pay, Samsung pay and google pay app. The user with NFC- enabled in their mobile phone can pay for goods/services using their phone. NFC phone communicate with NFC-enabled card machine using a close radio frequency identification, the mobile phone does not even have to touch the point of sale to transfer money.
- **Sound waves based payment** – Transactions are processed without the user being collected to the internet. This done through a unique sound waves that are encrypted with data about the payment, sound waves are usually sent from a terminal to a mobile phone and after the customer phone's then convert that data into along signals that finalise the transaction.
- **Magnetic Secure Transmission payment (MST)** – MST pay is when a phone emits a magnetic signal imitating the magnetic strip on the customer's credit card. When the customer uses this option the machine card terminal picks it up and processes it as if a physical card was swipe through the card machine. Samsung pay make use of both the NFC AND MST contactless mobile payment.

Mobile wallet (mWALLET)

Mobile wallet stores information on a mobile device and can use several technologies in the payment process. Apple Pay is an example that cut across several categories by allowing contactless payment on a card terminal and customers can use a fingerprint as an authentication (Bidgoli, 2019). Apart from storing the users credit and

debit card information the mobile wallet also allows the user to store important documents to it, one can also store loyalty cards, boarding passes and tickets.

Mobile payment (mPAYMENT)

This form of mobile payment can easily be explained as a process whereby a customer opens an internet browser (chrome or Explorer), add items into a cart, order and receive their goods/services with a receipt (Bidgoli, 2019). Payment of goods is contactless. Drawing from Bidgol (2019) Some of examples of this option includes but not limited to;

- **Internet payment** – customers make payment on the internet using their phone browser or with an app provided they have WIFI or a 3G/4G network signal. There are several ways a customer can pay with this option (1) they can manually enter the card details on the website to pay, (2) the payment can be automatically being charged on a bank card attached to the mobile app, or (3) the user can make use of PayPal.
- **Payment links** – this is also known as “Pay by link “, it is most commonly referring to a button/link sent in an email, text message. When the receiver clicks on the link it automatically takes the user to a checkout page and they have to enter their card details to proceed with the transaction
- **Mobile banking** - the mobile banking is an app provided by the user’s bank. different banks have their own sign up procedures to verify that the person trying to log in the app is really the owner of the bank account. Users can use this form of mobile payment to transfer money to their peers or just for paying for their bills.

2.2.2 The use of mobile payment in public transport in South Africa and the world

There are still no documented studies detailing the introduction of the e-ticketing system among mini bus taxis operating around the Johannesburg area. The idea behind the introduction of the e-ticketing system is to make the payment process more efficient and allow the auditing processes to be conducted in an easier way in the taxi (Na *et al.*, 2018). Even though that’s the case, the literature is also very silent as to

why taxi owner's / taxi drivers in the mini-bus taxi specifically were reluctant to adopt this application of convenience payment and why this form of payment was not successful and rolled out. SANTACO in KwaZulu Natal is plotting a new cashless payment system for their mini buses although they indicate that the acquisition of the necessary tools would cost well over two billion rand (Consultancy African Intelligence, 2013; Na *et al.*, 2018). The question still remains though whether this roll out will be successful.

In 2013, the city of Cape Town introduced MyCiTi as another form of public transport provider. MyCiTi is a card-based payment system and its commuters have to purchase a **myconnect** card from the station kiosks or selected retailers. After the commuter purchases the card then they must load a mover package in the card enabling them to either choose to load pay-as-you-go mover package or an unlimited travel packaged. The commuter has to the tap their **myconnect** cards against the validator at start and the end their journey thus allowing for automatic fare payment ("Myconnect", n.d).

At the beginning of 2013 the Kenya's government introduced a cashless payment system in the public transport. This implementation of electronic payment system allowed the commuters to pay electronically for public transportation instead of cash. This form of payment requires commuter to use a prepaid card or make use of mobile money to pay for their fares. The government of Kenya implemented this method of payment in the public transport to ensure the convenience, security, accountability and safety in the public transport sector (Semuju, Kounassi, & Ullmann, 2018).

Meanwhile the majority of developing countries still make use of cash payment when using public transport and most developed countries are making use of mobile payment application systems. De Kozan (2009) & DLG Sanchez (2017) argue that mobile ticketing system in the public transport comprises of both pay-as-you-go option which is the most popular method used in London through the Apple Pay app and an actual ticketing option where a commuter buys and authenticate tickets on their mobile phones. Norway is one country of the countries that's uses this option through the Router app.

Mobile payment application methods are commonly used in the developed countries because of the benefits when it comes to payment of trips which are convenient but they also provide reduction of cost for distribution of tickets and subscription for service providers. Reliability is essential for a positive experience when it comes to convenience payment applications as a reliable system promotes trust and trust is very important to promote user-acceptance and user-experience. User experience is very complex and does not depend on one specific feature or step of the application. The trust must be built from the logging in to the logging out of the application. (de Kozan, 2009; Teo et al., 2015; Cabanillas, Slade and Dwivedi, 2016)

The London tube and bus system accepts NFC payments for trips where the user would simply tap their travel card. China also accepts NFC payment for all the modes of public transport.

2.6.1 Barriers to the adoption of mobile payment

Cabanillas, Slade and Dwivedi(2016) state that there are four primary barriers when it comes to the adoption of mobile payment applications and these are:

- Privacy and security
- Interoperability
- Lack of business use cases
- Lack of consumer use cases

Privacy and Security

According to Jarvenpaa, Tractinsky and Vitale(2000) and Hayashi and Bradford(2012) it is of importance to look at the two pre-requisites of security and trust when looking into adoption and use of convenience payment. One of the prohibitions when it comes to payment system is the lack of trust and the increased risks perceived by the user regarding transactions which involves mobile payment system and other forms of technological payments (Koll, Wallpach and Kreuzer, 2008; Liébana-Cabanillas, Muñoz-Leiva and Rejón-Guardia, 2013).

Interoperability

Dahlberg, Guo and Ondrus (2015) suggest that when looking to convenience payment it's of importance to make use of Porter's five forces model which speaks to traditional payment service, consumer power, new e-payment service and merchant power by

looking into how each affect the adoption of the technology. According et al (2015a) the research of behavioural part of the buyer is rather limited and constrained, but when looking to convenience payment adoption the instigation of research on this study is of importance (Mallat et al., 2008; Lai and Chuah, 2010; Hayashi and Bradford, 2012; Cabanillas, Slade and Dwivedi, 2016).

Lack of consumer use cases

In investigating the behavioural aspects of consumer, it is important that the technology should be designed in a user-friendly manner considering issues of security and trust, cost and relative advantages (F. J. Liébana-Cabanillas, Sánchez-Fernández and Muñoz-Leiva, 2014; Dahlberg, Guo and Ondrus, 2015). Unauthorized access of payment is usually one of the main concerns when it comes to privacy and security of mobile payments. With issues of confidentiality of the user's information to the secondary users, this leads to identity theft as well (Chen and Nakayama, 2016).

Lack of business use cases

The provided fees have a huge effect on the value of mobile internet service, the financial service, mobile banking as well as mobile commerce transaction as it plays a huge role when the user considers adopting a new mobile payment method (Phonthanukitithaworn, Sellitto and Fong, 2015; Wu, Liu and Huang, 2017). The huge advantage of using convenience payment is the possibility of making payment easy, its effectiveness and time saving as well as independence of time and location and minimizing the time spent in queues by users of services.

2.6.2 Users experience of different types of mobile payment applications in South Africa and internationally.

Based on Davis' (1986) Technology Acceptance Model and the Diffusion of Innovation Theory the study draws on issues that guide user's acceptance and adoption of a new system Figure 2.6). Therefore, the two will be impact differently and give a better understanding of the issues behind users' adoption processes.

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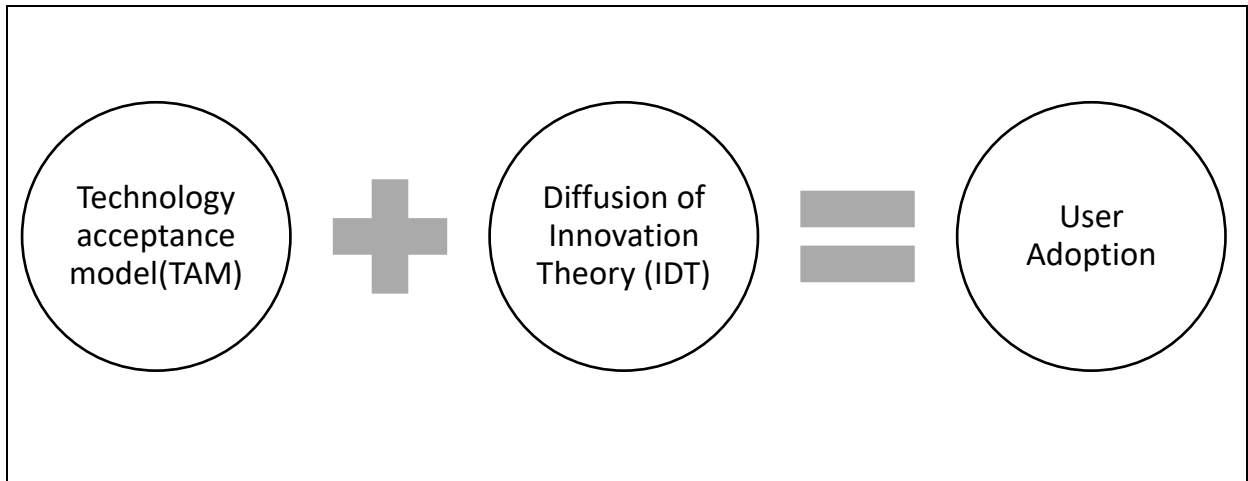


Figure 2. 6: Theoretical framework for user adoption

2.7 Technology Acceptance Model (TAM)

TAM is the most powerful theory to predict user's acceptance. TAM theory suggests that the user's behavioural intentions to determine actual system and user's attitudes towards using influence uses behavioural intention are closely linked.

According to Lee, Kozar and Larsen(2003) perceived usefulness can be defined as the way in which a particular system can enhance user's jobs performance and perceived ease of use addresses the characteristics of the system that need to be understood because easy interference is very important for any system. Therefore, perceived usefulness and perceived ease of use can affect user's attitude towards acceptance of mobile payment.

Therefore, mobile payment applications easily address the question of "Can the user pay easily and quickly? "

2.8 The Diffusion of Innovation Theory(IDT)

Adams (2014) asserts that in order for any innovation to be successful in the commerce market, it is important to convince the potential adopters'. The speed of the adoption is also affected by the potential adopters' knowledge and experience of that

specific innovation. In order to convince the potential adopters, take up speed of the adoption the following needs to be addressed:

- **Relative advantages:** the degree in which the innovation is better than the existing product;
- **Complexity:** the degree to which an innovation is perceived as being difficult to understand and to use;
- **Compatibility:** the degree to which an innovation is perceived as consistent with the existing value and experience of the potential user;
- **Trainability:** the degree to which the innovation can be experimented before its adoption; and
- **Observability:** the degree to which the results of the innovation are observable to others.

Since mobile phones are becoming part of our daily activities, the adoption of mobile payment is growing rapidly throughout the world. The devices are no longer used for communication purposes only but also as electronic wallets. The operation procedures and application area does not change the users' behaviour. The main purpose of mobile payment application is to provide advanced and convenient payment services. This could be the reason why there is growth in the use of mobile payment applications in South Africa and internationally.

It could, therefore, be argued that the use of mobile payment application is growing rapidly in South Africa and internationally. Because of its convenience, retail stores, private transport and other industries are adopting these convenience payment applications. The gap appears to lie in the adoption of mobile payment applications in the public transport industry, especially among the mini bus taxi industry.

3. Summary of literature review

The body of knowledge seems to indicate that convenience payment has been readily adopted internationally and in South Africa in various industries except for the mini bus taxi industry mode of public transport.

Consequently, the following leading questions formed the basis of the empirical research phase of this study:

- What are the factors preventing mini bus taxis to use convenience payment?
- What are the causes leading users to have limited confidence in new technologies?
- What are the business processes of payment of fares in the mini bus taxi industry?
- How would payment technologies affect the mini bus taxi industry?

CHAPTER 3: RESEARCH APPROACH AND METHODOLOGY

3.1 Introduction

The previous chapter discussed the review of the current and relevant literature needed to understand and interpret the phenomenon under study. The chapter also outlined the major themes derived from the reviewed literature that will help address the objectives and the research questions indicated in chapter 1. This chapter therefore, discusses the research design, the research methodologies and techniques adopted in this study. The research paradigm is discussed under section 3.2, followed by the explanation of ontological and epistemological perspective of the study. This chapter further outlines how data was collected and the sources used. Section 3.3 deals with sampling methods, followed by the sample process and criteria deployed for sampling. Section 3.4 covers the data analysis methods while section 3.5 provides the ethical consideration for the interpretive study.

3.2 Research design

According to Klopper (2012) a research design provides the study with a plan for the organization and execution of the procedures in order to answer given research questions and ensure the validity of the findings. Furthermore, Yin (2003) asserts that the design serves as a procedure to move from one point to another based on the research question asked.

Based on the recommendations of Botha, Westhuizen and Swardt, (2005), the study adopted a case study approach as the most suitable application of a qualitative methodological approach to be used to conduct a research in the uptake of mobile application payment systems in the mini bus taxi industry in South Africa. The study explored how the absence of fare payment business process could influence technology adoption in the mini bus taxi industry by investigating two taxi industries that are under Ward 1 in the Cape Town metropolitan. Interviews were conducted using semi-structured questions to ensure the answers or responses are focused and relevant but to also allow for a more open discussion.

The term “case study” has multiple meanings. According to Benbasat, Goldstein and Mea (1987: 371) “a case study is an empirical inquiry that investigate a contemporary

phenomenon within its real-life context, especially when boundaries between phenomenon & context are not clear". In order to be able to answer the combination of "what and why questions" in this study the use of a case study approach allowed for the description of the processes experienced by the mini bus taxi industry. Furthermore, this study employed the use of a case study method because of nature of data collection technique which involves both qualitative and quantitative methods.

The use of case study strategy helped to understand the stakeholders in the mini bus taxi industry through interpreting their behavior as a collective. Given that the mini bus taxi industry has no business processes in place the use of a case study was very useful as the contextual conditions of the mini bus taxi industry were very critical and the researcher had limited control on the events as they unfold. Given the interpretive position adopted in this study the case study was most appropriate approach to be used as it provided a systematic way to collect and analyze the information which helped to understand the core problems faced in greater detail.

3.3 Research methods

Meert et al., (2009) points out that research methods provide a study with a strategy of enquiry of the highlighted assumptions, the research design and data collection process. There are two typical research methods used in the body of knowledge namely qualitative and quantitative research methods. Each method plays a different role depending on the nature of the study conducted. The qualitative research method is more applicable for the study of social and culture phenomenal while the quantitative approach is more applicable for the natural phenomena studies. Furthermore, it is important to note that both these research approaches can be both used in one study and that neither of them is better than the other (Bryman and Burgess, 1999) The use of both qualitative and quantitative research methods is often referred to as mixed research methods.

Denzin and Lincoln (2003), emphasize that the use of qualitative research approach allows for the naturalistic approach in order to understand the meaning that the phenomena brings to the people in this study. Creswell (2003) and Creswell et al. (2013) also assert that the use of qualitative research approach allows for different enquiry strategies such as unstructured interviews and observation to be used as data collection instruments in a study., As Meert et al. (2009) point out a study of this nature

where there is limited knowledge, the use of qualitative research approach allows for the exploration and disclosure of issues that are being investigated.

Meert et al (2009) refer to data collection sources such as observation, participant observation and interviews that can be employed when conducting a qualitative study, while the use of surveys, questionnaires and experiments is more applicable for the quantitative research method. Amarutanga et al. (2002) and Hittleman and Simon (1994:31) also point out that quantitative research methods make use of numerical or statistical supported by narratives to understand the phenomena that is being investigated. Therefore, the qualitative method was employed in order to be able to fully explore the factors that are influencing the adoption of technology in the mini bus taxi industry.

The important process of this study was to observe, investigate and document in detail the core factors that the mini bus taxi owner, mini bus the taxi driver and commuter using a minibus taxi highlight as the key problem issues associated with the adoption or acceptance of new technology in the industry. This also provided an opportunity to investigate the business processes and their impact in decision making in the industry.

3.3.1 Research Paradigm

Given the aim and the main objective of this research and as outlined by Husén(1988); Baptiste, (2001); Klopper (2012); Scotland, (2012) the ontological position of this research is subjective and the epistemological position adopted is interpretive. Although technology acceptance / adoption could be the underpinning problem in the mini bus taxi industry, it is arguable that the absence of defined fares payment business processes may be a contributing factor to the existence of the phenomenon.

3.3.2 : Sampling Methods

The sampling procedure for the study were based on the model provided by Churchill & Lacobucci (200,283) as outlined in the six procedures presented in Table 3.1.

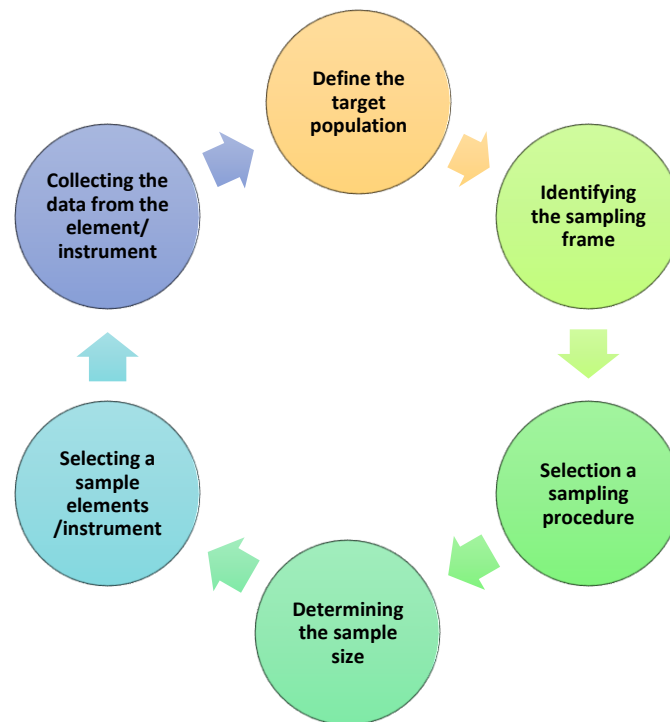


Table 3. 1: Six procedure of drawing sample

Step 1: Define the Population:

This qualitative study focused on small group of people who have experience with the mini bus taxi industry and have first-hand information. Therefore, the targeted population for this study were taxi owners that have at least two or more taxis operating in the city, taxi drivers that have been driving in the industry for more than three months and commuters that use taxis as a form of transport. For the purpose of this study the sample size was drawn from three selected taxi ranks in the Cape Town metropolitan area. The site was selected based on what Patton (2002) and Seitz et al., (2014) alluded to in that any common patterns emerging from grate deviation of particular interest and value in capturing the basic experience is central to the phenomenon.

Step 2: Identifying the sampling frame

The sample frame of this study comprised of a list of the mini-bus taxi owners registered at the selected taxi ranks, the taxi drivers, the random commuters that use the mini-bus taxi as a transport mode on a daily basis.

Step 3: Selecting a sample procedure

The stratified sample was used for the study to select the sample. This was to ensure that all the subgroups of the targeted population were well represented within the whole sample population of the research study.

Step 4: Determining the sample size:

- This study interviewed drivers of the mini bus taxi industry who have been in the industry for at three months. Ten interviews were conducted with drivers of the mini-bus taxi. The drivers were also the key participants in this study.
- Participates aged between 31- 80 years that make sure of the minibus industry were interviewed in this study. This was to able an analysis of how age group citizens will be affected by advanced technology use, what are the overall views of the use of technology and the level of understanding of the advanced technology. Five interviews were conducted with people that fell under this category.
- A young person in this study was classified as a person within the age group 16-30 years and that had a smart phone. This was done in order to help to determine and provide a clear understanding on how convenience payment application would affect their lives. Ten people that fall under this category were interviewed
- A taxi owner who had at least two taxis operating in the province were interviewed, this helped in the understanding of the owner's views in terms of introducing advanced technologies y and how the adoption of convenience payment methods would impact their business. At least ten interviews were conducted with mini-bus taxi owners

Step 5: Selecting the sample element

The sample element as the sample frame of this study comprised of a list of the minibus taxi owners registered at the selected taxi ranks, the taxi drivers and random commuters that uses the minibus taxi as a transport model daily.

Step 6: Collecting data from the designated element

This study made use of semi-structured interviews in order to obtain more data from the targeted sources. Semi-structured interviews were used in this study to allow for in-depth discussions. This study also made use of participant observation method of data collection by observing the fee payment method in the taxi industry.

3.3.3 Data Collection Instrument

Interview data collection was employed in this qualitative research study in order to provide evidence of the phenomenon that was investigated. Evidence was in the form of recorded accounts of people that have experienced the phenomenon being studied. The interviews conducted were semi structural, a pre-planned core list of questions were drawn for the data collection process. During the interviews the participants were given an opportunity to elaborate more on relevant information that would add value to the investigation. The interviews were recorded and transcribed.

Observations were carried out to establish the processes involved in fare payment and this was achieved through watching the exchange of money between commuters and mini bus taxi assistants.

3.4 Data analysis

Smith (2003); Bogdan and Biklen (2003) point out that qualitative data analysis provides a process of organizing data and splitting it into manageable units by checking for patterns and then incorporating them to enable the coding process to be more effective and efficient. The conceptual categories were identified and tentatively named which allowed for the phenomenal observed to be grouped during open coding. ATLAS.ti software was used to analyze data collected for this study. ATLAS.ti software is a powerful workbench qualitative analysis tool for handling f huge bodies of textual graphs, audio and video data. Coding was done by simply dragging codes onto a selected place of data. This software application also linked the findings in a semantic way and created digital mind maps of the findings. All the recorded interviews were loaded to the system.

3.5 Data preparation procedures

After collection of data, the researcher immediately prepared it so that she can remember things said by the participants when the interview was being conducted. The process also involved typing down in a word document the answers that were noted down on paper during the interviews. It was also important to go through the editing, coding and classification of the data phases so that the findings complied with the criteria for the collection of research which allowed for worthy data to be processed.

Validation: As outlined Leung (2015) research validation is an important tool when processing data. This was done through back to back bases of listening to the recording captured and the documented data findings. Research methodology is appropriate to answer the research question, even if the research question is not valid for the expected outcome (Baxter & Jack, 2008). The research design is valid for the sampling and data analysis and finally the domino effect and conclusions are valid for the sample and context.

Data entry: The data was directly entered and captured in ATLAS.ti software before being transforming the raw data into useful information.

Data cleaning: Once data was entered into the ATLAS.ti software before analysis, further checking of the data was done to ensure that there was a corresponding number of recordings recorded and the number entered on the ATLAS.ti software and also to ensure that there was no duplication.

Date Verification: Data authentication was conducted in order to test for the correctness and discrepancies after the data recollection was completed. In order to avoid data loss while preventing unnecessary errors data juxtapose was employed in that verification process of this study.

Output analysis - After the analysis of the research information was done, the researcher checked for compliance of results to established theories in convenience payment application tool.

3.6 Ethical considerations

This study acknowledged that the ethics of business and research constitutes an area in which the role of values in the research process is a cause for concern. The researcher can guarantee confidentiality in respect of the sample of respondents (the mini bus taxi industry) who were interviewed, as well as not divulging details of their

respective businesses. Written permission was obtained from the mini bus taxi owners, mini bus taxi drivers and mini bus commuter users.

Formal ethics approval to conduct the research was obtained from the Faculty of Business Research Ethics Committee at the Cape Peninsula University of Technology. All interviews sessions were scheduled at the convenience of the participants, and prior approval was obtained for recording the interviews and writing of notes of responses. The following key ethical considerations were adhered to in this study:

Integrity: throughout the conduction of this study the promises and the agreement made to participants were kept. The research excluded the names of the participants that wished that they name must be kept out on the reports

Honesty: All the results obtained in this study were not fabricated and the reported data was not misrepresented and not falsely stated.

Objectivity: This study strived to avoid biasness in design, data analysis, data interpretation, and other aspects of research where objectivity was expected or required.

Carefulness: In order to avoid errors the work was critically and carefully examined. The records of the research activities were kept in good condition for future reference in complication of the study.

Openness: The shared data, results and ideas with the supervisors obtained with the openness of criticism thus getting new ideas on tacking the study moving forward.

Confidentiality: All the personal records of participants and information pertaining this study was kept confidential.

Responsible Publication: The importance of publishing for advancement of research knowledge and scholarship was understood, which is why the paper was published at the completion of this study.

Non-Discrimination: There was no discrimination against anyone in this study based on their sex, race, ethnicity and any other factors that are not related to their scientific competence. Before the conduction of the interview the participants were asked to state their preferred pronouns thus using them throughout the interview.

Human Subjects' Protection: Special precautions when dealing with vulnerable population was taken. Harms and risk of the population was minimized by making sure that their dignity and privacy was respected thus maximizing the benefit to the study.

4 Summary

The purpose of this chapter was to describe the research methodology of this interpretive study. The research design was further discussed; methods and techniques adopted. A number of challenges were encountered during the fieldwork phase of the study. It proved to be difficult to secure interviews with owners and drivers of the mini-bus taxis, and even when they were confirmed, there were incidences where meetings had to be cancelled at the last minute. The next chapter details all the results of this interpretive study.

CHAPTER 4: FINDINGS AND ANALYSIS

4.1 Introduction

A number of challenges were encountered during the fieldwork phase of this study. It proved to be difficult to secure interviews with owners and drivers of the mini bus taxis, and even when they were confirmed there were incidents where meetings had to be cancelled at the last minute. Furthermore, there was a huge language barrier during the semi structured interviews.

This chapter therefore details all the results of this interpretive study. The purpose of this qualitative study was to explore factors influencing payment convenience in the mini bus taxi industry in Cape Town, South Africa. This chapter provides the results of the qualitative analysis from the data collected from semi structured interviews and observations. It outlines findings and further gives analysis and interpretation from each data collection phase. This chapter is divided into five distinct sections resulting from the data collection form:

- (a) Phase 1 which involved semi structured interviews with the mini bus taxi drivers in Ward 1 in the Cape Town metropolitan;
- (b) Phase 2 which involved a semi-structured interviews with participates the age between 31-80 years;
- (c) Phase 3 which involved semi- structured interviews with young persons between the age of 16-30 years;
- (d) Phase 4 which involved semi structured interviews with the mini bus taxi owners; and;
- (e) Phase 5 which was an observation of the process of fare payment.

The findings generated, narrate both the negative and the positive aspects from all the stakeholders of the minibus taxi industry which are the taxi drivers, the commuters and the owners. These responses are based on the main question of the study, which were to investigate the factors influencing the adoption of convenience payment by the minibus taxi industry in Cape Town. The research sub-questions of this study were:

1. What are the factors preventing minibus taxis to use convenience payment?
2. What are the causes leading to users to have limited confidence in new technologies?
3. What are the business processes of payment of fares in the minibus taxi industry? and
4. How would payment technologies affect the mini bus taxi industry?

Although the findings also depicted major limitations in the user acceptance of a new technology, especially in an unregulated business, this also allowed for reflection upon many challenges faced by this industry that are related to the cash fare payment system. The information in Table 4.1 summaries the overview of the fieldwork and procedures followe

Table 4. 1: Overview of the fieldwork and procedures

Phase	What was done	How it was done	Why it was done	When it was done	Where it was done	With whom it was done
1	Semi- structured interview	Semi- structured interviews with the taxi drivers. Recording through a smart- phone and diary	To identify the factors preventing mini-bus taxis to use convenience payment	May 2020	Taxi rank	Mini bus taxi drivers
2 & 3	Semi- structured interview	Semi- structured interview with the senior citizens and young people Interview was recorded and a text version was compiled.	To determine the causes leading to users to have limited confidence in new technologies	April 2020-May 2020	Taxi Rank webex meeting app	Senior citizen Young person
4	Semi- structured interview	Semi- structured interview with the mini bus taxi owners. Interview was recorded and a text version was compiled by a transcriptionist.	To identify the factors preventing mini-bus taxis to use convenience payment thus determining the impact of payment technologies on the mini bus taxi industry	June 2020	Taxi rank offices Taxi rank	Mini Bus taxi Owners.
5	Observations	Observation was conducted through observing the process of fare payment.	To investigate the business processes of the mini-bus taxi industry in relations to payment of fares	May 2020	Mini bus taxi rides.	n/a

4.2 The background of the participants.

The information presented in this section provides a summary of the main characteristics of the participants who took part in this case study in the mini bus taxi industry in Ward 1 of the Cape Town metropolitan area.

- Phase 1 of the fieldwork involved semi structured interviews with 10 mini bus taxi drivers. The selected taxi industries of this study was based on Ward 1 in terms of item 5(2) of Schedule 1 of the Local Government: Municipal Structures Act, 1998 (Act No.117 of 1998), in Cape Town, Western Cape, South Africa
- The second phase of fieldwork involved face to face and online semi structured interviews with participants, aged between 31-80 who use the mini bus taxi as a form of transport on a daily basis. This age classification was deployed to analyse how this age group will be affected by advance technology and their responses to the adoption of such technology. Five interviews were conducted with people that follow under this category.
- The third phase of fieldwork was face to face and online semi structured interviews with 10 young people between the ages of 16-30 years to give a clear understanding on how convenience payment would affect their lives.
- The fourth phase of the fieldwork involved a semi structured interview with 10 mini bus taxi owners. This helped to understand the owner's views in terms of advance technology and how the adoption of these convenience payment methods would have impact their business.
- The Fifth phase of the fieldwork was about observing the process of fare payment to determine the process used when fares are being paid.

4.3 Findings

4.3.1 Phase 1 of the study

Phase 1 of the fieldwork of the study involved a semi-structured interviews with the mini bus taxi drivers and the following questions were asked.

4.3.1.1 What would you say is the biggest problem that you face on daily bases when it comes to fares collection?

The responses to the semi structured interviews with regards to the biggest problem that the driver faced on a daily basis when it comes to fares collection indicated the following:

- *Commuters paying with large banknotes especially in the morning which causes delays as the driver and the door operator will be looking for change. In some cases, this leads to loss of income as the commuter is allowed to disembark without paying to avoid any further delays through looking for change. [Driver 1]*
- *There is usually shortage in the total trip income as some commuter/s evade paying the fare as it is very difficult to monitor especially if one is driving without a door operator. [Driver 4]*

4.3.1.2 What do you think is the cause of this problem? Can you, suggestion a solution?

(a) The lack of more small denomination of the currency in circulation

- **Cause of the problem:** *The responses suggest that this problem is caused by nature of the business, which is that one cannot start the business with yesterday's money. All proceed are given to the owner at the end of the day [Driver 1].*
- **Suggested solutions:** *The responses vary with different drivers, some suggested that the best way is to plead with the commuters not to bring large bank notes especially during the morning peak hour, as stopping at the garages to look for change wastes time and reduces income flows. The last group suggested that the best way is to work a loan agreement with the relevant taxi owners to give them coins to use but this is considered to be the last option [Driver 4].*

(b) Shortage in total trip income

- **Cause of the problem:** *The response suggest that this is caused by many things, some of the examples cited are that some commuters board the taxis without any money, some forget to pay due to distractions and lastly that some commuters do not simply want to pay [Driver 3].*
- **Suggestions of solutions:** *The responses suggested that the best way to is to always have a door operator who will be charge of the collection of fares, or collect the fares before the vehicle drives off [driver 5]*

4.3.1.3 Do you think convenience fare payment would revolutionise the mini-bus taxi industry and why?

The mini bus taxi industry is part of the informal economy as generally vast majority of the owners do not register for tax and vast majority of their employees are not registered under labour (Walters, 2013). Therefore, it is of no shock that the mini bus

taxi industry does not follow the normal employment process of the Labour Act of South Africa. Thus, the responses with regards to convenience fare payment and whether or not it will revolutionise the mini bus taxi industry is divided into two; (1) a commission based driver and (2) a target based driver:

(a) Commission based Drivers

The commission based drivers believes that the use of these convenience payment application could revolutionise the industry in a positive way. They highlighted that this could bring correct work conditions which means correct labour contracts from the taxi owners. The issues of uncertainty of total day income has been the biggest barrier for them in qualifying for things such as house bonds, loans and car loans. As much this group thinks this would revolutionise the industry in the positive way for them, they also highlighted that it can eliminate the need of a door operator which will result in job loses [Driver 1 & 5].

(b) Target based Drivers negative revolutionise

The second group of drivers which was the majority stated that the use of these convenience fare payment applications would negatively impact this industry. They highlighted that use of such applications will cause a huge conflict between them as drivers and the taxi owners. The Drivers stated that these forms of fare payments create the following problems:

- **Paper tail** – *Firstly the owners will have the records of the transactions and might not be completely honest with the figures and profits made on that day. Secondly paper might cause the owner to become greedy in instants when they see that more money was made that day which might end up causing them to increase the initially agreed total targets forgetting that each day is different in this industry.*

A typical example would be that if the owners /driver agreed on a daily target of R600.00 and the owner noticed that the driver made total income of R2500,00 and after accounting all for expenses they make a total profit of R1000.00 which is higher than that of the money received by the owner would cause tension. As much as this has it pros and cons, the drivers were happy with taking the risks associated with way improving the processes in the industry [Driver 2, 3,4]

Furthermore, the responses suggest that the use of convenience fare payment application may cause delay in operations. Especially when the application is offline or was not charged the previous night. Or even worse when they require maintenance [Driver 1,2 ,3 ,4 & 5]

4.3.2 Phase 2 and Phase 3

The mini bus taxi industry transports masses of people in the lower income groups, as it is readily available and most affordable one to the public (Lombard *et al.*, 2001; Fobosi, 2019). The two phase of 2 and 3 semi structured interviews with commuter's where done simultaneously as indicated in Table 4.2.

Questions asked	Citizen Age (between 31-80)	Young person (aged between 16-30)
often do use a taxi in a week ?	<p><i>The response of the semi structured interview with regards to the number of times this group of individual makes use of a mini bus taxi seems to suggest that they make use of a taxi on a daily basis. With Monday to Saturday used to go to work places and Sunday using it to attend churches.</i></p>	<p><i>The responses of the semi structured interviews with this group suggested that the people between the age of 16-18 uses the taxi between three to five times a week as they usually use a bus and taxi interchangeable to travel to school,</i></p> <p><i>The second group which is at the age of 20-30 suggested that they use the taxi on a daily basis to travel to different workplace and back home. This group usually work on Sundays as well,</i></p>
What are some of the difficulties you face when it comes to cash payment of fares?	<p><i>The responses of the semi structured interviews that the middle/ senior class commuter with regards to difficulties face regards the use of cash payment of fare system is the lack of change in the morning and the fact that they should always make sure they have the sufficient cash with them at all times.</i></p> <p><i>Some highlighted that people with short fare usually don't speak out which causes the driver to stop in the middle of the road to ask for the short money which leads them being late for work. While this could be the biggest inconvenience to many customers the issues of the driver not having significant change especially in the morning is their biggest challenge with the cash option.</i></p>	<p><i>The response of the semi structured interviews the young commuter with regards to the difficulties face when it comes to the use of cash payment of fare systems is the lack of change and the carrying around of cash.</i></p> <p><i>This group of commuter highlighted that they get frustrated especially when they receive a lot of coins. Some response suggested that the lack of change in the morning cause them to even leave their money behind in order to avoid being late for either school or work.</i></p>

<p>Would you accept non-cash fare payment? Please elaborate on your answer?</p>	<p><i>The response of the semi structured interviews with regards to the use of non-cash fare payment was divided, with majority highlighting that they would not accept any other form of non-cash fare payment application due to issues around safety and the literacy challenges.</i></p> <p><i>While the other Majority would rather settle for a tap points system where they load points on a card and use it to access the taxi as this is a much safer option.</i></p>	<p><i>The response of the semi structured interviews with regards to the acceptance of non-cash fare payment application suggested that majority of this group would accept other forms of payment that are in a form of apps like the ones used by the private meter taxis like the mobile payment used in Uber, and Taxify. But they also alluded that this comes at an additional cost like making sure that one always has data to be able to access this application and also some unwanted application costs.</i></p> <p><i>The use of an application is suggested to be more convenient for some but also would rather prefer a tab system where they just load it with points and they tab at the door before the start of the trip, this is because of the fare paid at the taxi are usually really low and range between R7-R20. This group seems to suggest that the fact that there is absent business processes in place thus causing the resistance in making use of card system being the risk associated to the use of cards is very high .</i></p>
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Table 4.2: A summary of the responses from phase 2 and phase 3

4.3.3 Phase 4 of the study

Phase 4 was done with the main stakeholders of this industry known as the owners. There are two different type of owners in this industry; one being an owner/driver who owns taxis and also drives as well. The other is just an owner that owns mini bus taxi and hires drivers. The following key questions were asked:

4.3.1.4 In a situation that one does not have cash, what other forms of payment does your vehicle accept?

The response to the semi structured interviews suggest that there is only one form of payment in this industry which is that of a cash payment system [owner 1,2,3,4,5,6,7,8,9 &10].

4.3.1.5 What are some of the problems you experience with having cash as a form of payment?

The response suggest that the main problems experienced by these two types of owners varies, all owners highlighted that cash fare payment model comes with many dangers. The owner-driver experiences the same problems as those of normal driver which includes:

- (1) Shortage of total trip income [Owner 1 & 6].*
- (2) Lack of small denomination of currency to give change to the commuter that paid with high denomination of currency [owner 1 & 6]*
- (3) Taxis usually get hijacked which at some incidents leads to serious injuries to the drivers and worse death [owner 1,2,3,4,5,6,7,8,9 &10].*
- (4) House robberies and brakes in as the criminals knows that they are in possession of money [owner 1,2,3,4,5,6,7,8,9 &10].*

4.3.1.6 Do you think these problems can be solved through using convenience payment, please explain why and why not?

The responses suggest that owners think that the problems can be solved or eliminated through the use of convenience payment applications. As they eliminate the dangers that comes with being in position of cash [owner 1,2,3,4,5,6,7,8,9 &10].

4.3.1.7 What are your thoughts around introducing other forms of payment like cards etc. in the mini-bus taxi industry?

The response suggest that most owners would consider introducing convenience payment application provided that it caters for their needs in

the mini bus taxi industry. Because of their convenience in operation. But they also alluded that they are governed by the different associations and because of that they cannot just introduce any form of payment without approval from the relevant associations [owner 1,8,9,10,6,3]. However, the other owners are happy with the cash payment process being the only payment model in them fleet [Owner 2. 4,5, &7]

(5) The owners also highlighted that use of these form of payment comes with and extra costs. The implementation and maintenance of these payment applications comes at a cost as well, which leads to question of their battery life and cost of keeping them online. They also stated that they cater for in formal sector therefore most of their commuters are not technologically advanced so this will require teaching/ training which will delay their operations. [owner 1,2,3,4,5,6,7,8,9 &10].

4.3.1.8 Do you think convenience fare payment would have revolutionised the mini bus taxi industry and why?

The responses suggest that a small group owners think that making use of convenience fare payment applications might be just what this industry needs to enhance competitive with other forms of transport. These owners state the use of convenience fare payment application would revolutionise the industry in a positive way as it will also bring about transparency between owners and drivers especially for those drivers that work on commission as they suspect that they pocket some of the money. This group also state that the use of these applications would also reduce the number of hijackers in their vehicles and robberies [Owner 1 & 6]

While responses from majority seems to suggest that use/introduction of the convenience applications would negatively revolutionised this industry, as this would mean a paper trail and the interface of government as they have tried many case in the past to modernise this industry [Owner 2,3,4,5,7,8,9 &10].

4.3.3 Phase 5 of the study

The last fieldwork of this study involved observations of the process of fare payment. This was conducted through observing the way commuters pay for the service.

4.3.3.1 Mini bus taxi from Claremont to Cape Town CBD

The driver travelled with a second person which in the terminology of the mini bus taxi industry is referred to as a door operator, this person is the one that collects the fares from the customer, he is the person that gives out change. After the collecting the money from all the customers he passes the paper money to the driver and keeps the coins for change purposes throughout the day [Observation 1].

4.3.3.2 Mini bus taxi from Khayelitsha to Cape Town CBD

When the taxi was full the taxi driver collected the fares from commuters before driving to the final destination. He gave out change [Observation 2].

4.3.3.3 Mini bus tax Cape Town CBD to Kloof street

The commuters combine the taxi fare as per the sitting arrangement and passes it to the person who is sitting in the front seat next to the driver, this individual collects all the fares and gives out change to the other commuters that are supposed to get some change and passes the drivers the total of the expected money. The driver then pockets the paper money and put the coins in a car drawer [Observation 3].

This chapter then further contains a comprehensive analysis and evaluation of the results in relation to the literature study and fieldwork. The finding substantially answers the following objectives of the research:

1. To identify the factors preventing mini bus taxis to use convenience payment;
2. To determine the causes leading to users to have limited confidence in new technologies;
3. To investigate the business processes of the mini-bus taxi industry in relations to payment of fares;
4. To determine the impact of payment technologies on the mini-bus taxi industry; and
5. To propose guidelines for the adoption of convenience payment in the mini-bus taxi industry.

In light of this regard then, each objective is addressed by way of a discussion of the results in relation to the literature study and fieldwork. The focus of this research study

was on convenience payment applications. Key to this study was the notion of technology transfer and technology commercialization, where through a multi-factorial approach, the aim was to investigate factors that influence adoption of the payment convenience model in mini bus taxi industry in supporting them towards enhanced competitiveness.

4.4 Interpretation

4.4.1 Phase 1

The following key findings relating to the factors preventing the mini bus taxi to use convenience payment where identified:

- The is lack of trust between the owner and the taxi driver, as the drivers that work on a target basis suggest that the introduction of payment systems will only lead to taxi owners being greedy;
- The limited knowledge around the use of convenience payment applications led to quick dismissal to the of these applications;
- The perceived delays in operations; and
- There is a perceived view that the use of these application will result in job losses.

These findings have led to the following interpretations:

- As highlighted by Walters (2013) The industry has employed a sum of 185 000 direct jobs and an additional 150 000 indirect jobs, which is the employment ratio is 1 :1.5. Therefore, Fear of job loss prevents the stakeholders to consider implementation/ adoption of payment convenience applications.
- This industry is part of the informal economy as majority of owners do not register for tax and vast majority of their employees are not registered under any labour laws. This has then causes a lack of trust between the stakeholders which become the biggest barrier when it comes to adoption of convenience payment applications. Furthermore, as critique by Adams (2014) in order for any innovation to be successful in the commerce market, it is important to convince the potential adopter's. The speed of the adoption is also affected by the potential adopter's knowledge and experience of that specific innovation, therefore the limited knowledge when it comes to different payment applications and their functionalities is a major factor which leads to stakeholders having any interest in different convenience payment applications.

4.4.2 Phase 2 and phase 3 of the study

The following are key finding relating to the causes leading to users to have limited confidence in new technology from the study:

- Majority of users are not comfortable with the use of convenience payment applications in this industry;

- The cost related to the use of payment application to the customers is far greater than just making cash payment as most fares are very low; and
- The issue of security and privacy concerns becomes the biggest concern to commuters.

The above-mentioned findings led to the following interpretations:

- Technology should be designed in a user-friendly manner considering issues of security and trust, cost and relative advantages as highlighted by Guo and Ondrus (2015). Limited confidence of users with regards to the new technology especially in this industry is due to the fact that the cost of a trip is usually lower than the cost of the maintaining/ making use of an application. Furthermore, Hayashi and Bradford(2012) highlighted that it is off importance to look at the two pre-requisites which is "security and trust "when looking into adoption and use of convenience payment. The current business process in place do not give assurance to the customers that their personal information is protected and in case of breaches there are no records on drivers and recourse for justice.

4.4.3 Phase 4 of the study

The following are the key findings relating to the impact of payment application technology in the minibus taxi:

- A small group of the mini bus stakeholders are of the view that the use of payment convenience applications will contribute to change in terms of labour conditions and lead to more transparency among all key players. The majority also suggest that the introduction of new payment methods might lead to job loses of the indirect employees, and also led to backlash between drivers and owners instead of transparency;
- Majority of the stakeholders suggest that convenience payment applications can also lead to decrease in the rate of hijackers and house robberies;
- Majority of owners and drivers suggest that the use of these payment convenience application could cause a delay in the business operations;
- The implementation and use of technology payment application will create a paper trail which would end government hands and lead to possible taxation of the industry; and.
- Majority of the stakeholders expressed that they are not willing to take the additional costs that comes with implementation and maintenance of these applications.

The above- mentioned findings led to the following interpretations:

- The mini bus taxi industry stakeholders acknowledge that use of convenience applications could have some positive influence in reducing some of the challenges that this industry face in using the cash based payment system. Furthermore, as highlighted by Liebana-Cabanillas, Sanchez-Fenandez and Munoz-Leiva, (2014) technology should be designed in a user-friendly manner considering issues of security and trust, cost and relative advantages. The use/ implementation of convenience payment application brings about additional cost which none of the stakeholders are willing to take on. While the majority of the stakeholders expressed that the use of these applications can cause a big backlash

between the mini bus taxi owner and taxi drivers and they could also lead to delays in business operations.

4.4.4 Phase 5 of the study

The following key findings relating to the business process of the mini business taxi industry in relation to payment of fares were identified from the study:

- Majority of the taxi drivers travel with the door operator who is responsible for the collection of the fare and giving out change;
- The driver collects all fare and give out the change to the commuter; and
- The commuter sitting in the front collects all the fares from other commuters and also gives out change and give collections to the driver.

The above-mentioned findings led to the following interpretations:

- The mini bus taxi industry doesn't not follow any laid out business process in their operations. The business process of payment of fares varies from one taxi to another. The absence of proper business process has lead to owners losing between 35% - 50% of fares that are pocketed by drivers through the use of cash-based system as indicated by Ford and Bull(1989) and Tsele (2017).

5 Summary

This chapter has presented and discussed the key findings of the qualitative data collected and analysed throughout Phase 1, Phase 2, Phase 3, phase 4 and Phase 5. The research framework and research questions guided the patterns of the findings, which represented the most relevant results to the research's objectives. The data collection processes gathered appropriate findings about the factors influencing payment adoptions of payment applications in the mini bus taxi industry, the current business process when it comes to payment of fare currently in place, the impact of adoption of convenience payment applications within this industry. Also, the study was able to determine the contradictory results that could help extend further research and make improvement to the implementation process of these payment convenience applications.

As reviewed in Chapter 2, the mini bus taxi industry contributes to the informal economy of the country and it very important as it cater for the 65% of the share market in the public transport sector. This industry doesn't make use of any other non-cash payment applications. This study is also concluding that the use of a convenience application could resolve some of the problems faced by the use of cash payment processes. However, not all stakeholders are interested in adopting any other payment applications as this could lead to backlash, additional cost, delay in operations, government interference through audits of paper trail and possible job losses.

From the findings of research study, it is clear that the beneficial assumptions of convenience payment applications were challenged. While there were positive views from some of the mini bus taxi owners and drivers that the implementation and use of convenience fare applications would revolutionise the industry in a positive way, major limitations and barriers still exist.

CHAPTER 5: RECOMMEDATIONS AND CONCLUSION

5.1 Introduction

The previous chapter presented and discussed the findings from the data collected through the semi structured interviews conducted in selected mini bus taxi industries in Cape Town. This investigation took the form of a case study based on a number of approaches including a review of the literature and focused semi-structured interviews...

The main aim of the study was to explore the factors influencing payment convenience in the mini bus taxi industry and was conceptualized through duality of structure and discussed through implications of research questions. The research questions where driven by underlying assumptions of the research culminating in addressing the main objectives of the study by proposing a general framework that will guide convenience payment technology adoption in the mini bus taxi industry. Based on the findings from the previous chapter the aim of this chapter is to draw conclusions and make recommendations that will influence adoption of convenience payment in the mini bus taxi industry in supporting their business operation.

5.2 Overview of research

The first chapter established provided the background and the setting of the research, the rationale and significance of the study, problem statement and based on this premise the research questions were developed. Pursuant to establishing the main argument the chapter also established the main aim and objectives of the study. Furthermore, this chapter established ethical considerations, limitations and delimitations of the study. This chapter also gave an overview of literature, underpinning theories and research approach. This chapter culminated with a thesis layout.

The second chapter dispensed with critically analysis of the cultural dimension theory and the theory of constraints thinking process. Furthermore, this chapter critically analysed the use of the Technology Acceptance Model (TAM) and the Diffusion of Innovation Theory(IDT) in clarifying and predicting user's acceptance and adoption.

The third chapter dispensed by articulating the ontological and epistemological positions adopted for understanding the phenomenon and how knowledge about the

phenomenon can be enhanced. The chapter discussed the research instrument, data collection instrument, sample size, outlined the population and the validity of the research effort.

The fourth chapter discussed the abstraction process of the themes drawn from the semi-structured interviews with the min-buss taxi industry in selected areas of Cape Town. This chapter narrated the actual findings of the study.

5.3 Research objectives revisited

5.3.1 Main Research Objective

To determine the factors preventing mini-bus taxis from using convenience payment

The phenomenon being addressed in the main research objective is socially construed, as such, and the study adopted a subjective ontological and interpretative epistemological stands ((Baptiste, 2001; Klopper, 2012). Thus, the main research objective was to address the research aim to explore factors that are preventing mini bus taxis to use convenience payment. This study can therefore be classified as a process study. In order to address the objective(s), the study reviewed relevant literature related to the study and collected data based on the philosophical assumptions, culture of dimension theory and the theory of constraints thinking process. Drawing from Georgina and Baguley (2017) theory allowed the study to pursue a structured context in the pursuit of investigating and understanding a phenomenon.

5.3.2 Research Objectives 1

The causes leading to users to have limited confidence in new technologies

The mini bus taxi industry transports masses of people in the lower income groups, as it is the most available and most affordable one to the public(Lombard *et al.*, 2001; Fobosi, 2019).The mini bus taxis operate till late hours and also offers a late night serves to accommodate the masses that work till late hours in the retail sector and other sectors. This makes it the most popular mode of transport in the urban areas. The study's was thus focused on investigating stakeholder's knowledge on different convenience payment application and their willingness to adopt them in this industry.

5.3.3 Research Objectives 2

The business processes of payment of fares in the mini bus taxi industry

Drawing from Tsele (2017) conclusions the owners lose between 35% -50% of fares that are pocketed by drivers through the use of cash-based system. The study observed the process of payment of fares in the mini bus taxi industry by boarding three taxis to observe what processes are deployed when it comes to the collection of taxi fare by commuters.

5.3.4 Research Objectives 3

Payment technologies impact on the mini bus taxi industry

In line with the conclusions made by Chen and Adams (2014) in order for any innovation to be successful in the commerce market, it is important to convince the potential adopter's. The speed of the adoption is also affected by the potential adopter's knowledge and experience of that specific innovation. Furthermore, technology should be designed in a user-friendly manner considering issues of security and trust, cost and relative advantages as highlighted by Dahlberg, Guo and Ondrus (2015). This study explored how the introduction of payment technology would affect the mini bus taxi industry in the quest to find out how new payment approaches could revolutionise the industry.

Based on the analysis of research objectives the findings of the study are briefly discussed below.

5.4 Summary of finding

The study established a myriad of dimension pertaining to the findings from the semi structured interviews and the literature review. The study abstracted two key themes as fundamental determinate that underscore the influence of convenience payment on mini bus taxi industry. The themes are namely, lack of trust, and cost verses preserved advantage. The study established that convenience payment applications has aspects that can affect the mini bus taxi industry both negatively and positively, the findings are briefly discussed below.

5.4.1 Lack of Trust

Drawing from the interviews the study established that the lack of trust can be divided in two; Lack of trust between stakeholders and lack of trust on the application.

5.4.1.1 Lack of trust between stakeholders

Drawing from the interview it was established that the drivers felt that the use of these would create backlash between them and the taxi owners. Drivers that work on a target income felt that use of these application would create paper trail that would result in the owners become greedy and increase their target forgetting that each day is different. While the drivers that are on the communion income felt that the use of the convenience payment of fare would cause backlash as the owner might not be honest and transparent about the total income made for that particular day. With the current working conditions that doesn't have current labour process this could result in job lose.

5.4.1.2 Lack of trust on the application

Drawing from Tsele(2017) The mini bus taxi industry transports 65% of commuters daily in the public sector therefore it was of importance to understand how the user felt around the use of these convenience payment. The geographical areas in which the mini bus taxi mostly operates is regarded as the urban areas. Drawing from interviews it was established that the commuters have limited trust that their information won't be vulnerable to unauthorised access and there seems to be absent business processes that could allow for a process of accountability. The users highlighted that this industry changes drivers every day and this poses a great risk to their personal information.

The stakeholders felt that that these convenience has an element that could delay operations and could also threaten job security of the indirect workers of this industry. This industry has employed 185000 workers plus an additional of 150000 indirect workers over the years (Schalekamp and Behrens, 2010; Tsele, 2017). Furthermore, the owners felt that the use of convenience payment application would open an opportunity for a government interference through a paper trail embedded in them and lead to other demands by government like taxation.

5.4.2 Cost verse preserved advantages

Based on the interviews the study established that the convenience payment has a possibility of solving some of the key identified problems faced by this industry with the use of cash based system. These problems include lack of small denomination of

currency to give to change to the commuters that paid with high denomination, loss of income on a particular trip, hijacking of vehicles and house robberies. But stakeholders felt that the cost is far greater than the advantages. The owners and drivers felt that the use of convenience payment applications come with extra costs like implementation, maintenance, training of users and that this could cause delay in operations.

Furthermore, it was established that the commuters felt that paying with cash is far better as the taxi usually cost between R7-R20 for a trip. They felt that convenience payment comes with extra charges such as the need of connectivity, bank charges etc. Technology should be designed in a user-friendly manner considering issues of security and trust, cost and relative advantages (F. Liébana-Cabanillas, Sánchez-Fernández and Muñoz-Leiva, 2014a). Therefore, drawing from the interviews it was established that the stakeholders felt the cost of convenience payment in the mini bus taxi industry is far greater than its perceived advantages.

5.5 Research contributions

The research contributes to theory through provision of a general framework that is driven by cultural dimension and constraints of thinking process theories. The research advocates formation of business process of payment of fares. The research highlight that in order to understand the mini bus taxi industry the cultural dimension theory should be deployed as suggested by Hofstede (1998). Once the study is understood, then the uses of the constrains thinking process allows for answering of the three main questions: what to change; what to change to; and how to bring about the change? In order for the mini bus taxi industry to adopt the different payment convenience.

Furthermore, the use of technology acceptance model and Diffusion of Innovation Theory as the most influential theories in clarifying and predicting user's acceptance and adoption of a new system allowed for provision to give a better understanding the role in user adoption process as suggested Davis (1986).

The general framework is postulated on the premise that as much as convenience payment applications have a possibility to revolutionaries the mini bus taxi industry, the fact that the mini bus taxi industry operates more on the basis of an informal business than a formal one makes it difficult for adoption of new technologies. Therefore, in order for the adoption to happen it is of importance to manage the

stakeholder's expectations. The total absence of business process on payment of fares create a barrier for the creation of a customized payment convenience application.

5.5.1 Theoretical contributions

The study culminated in a general framework that defines the approach that can be taken in order that adoption of convenience payment applications in the mini bus taxi industry can occur. The proposed general framework is projected in Figure 5.2.

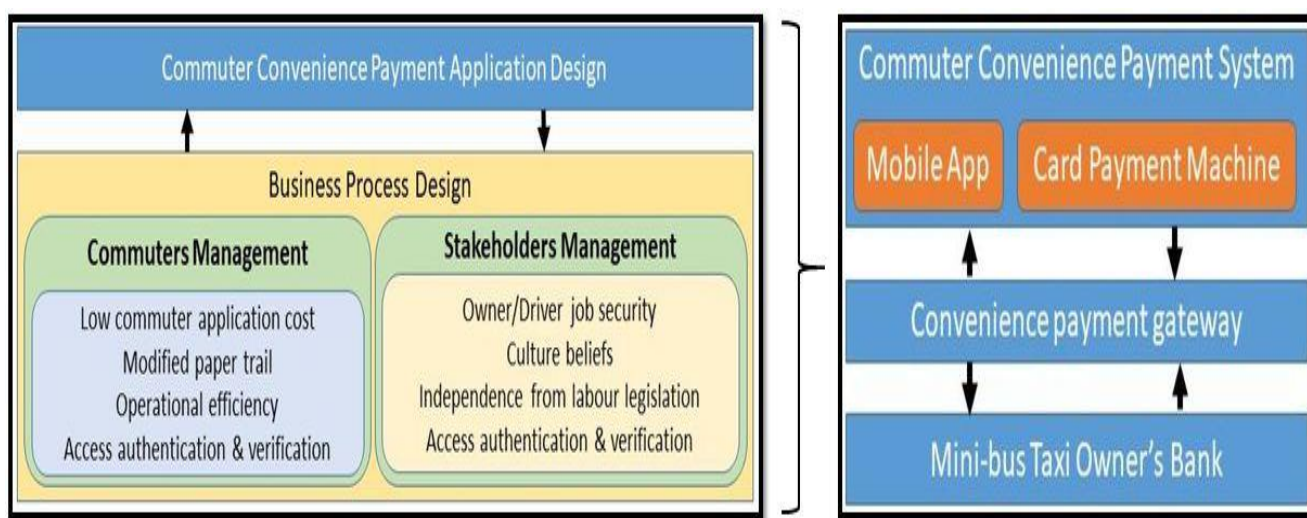


Figure 5. 1: Proposed General Framework

In order for the adoption of the convenience payment application in the mini bus industry there is a need for the formation of business processes through addressing shareholders experience and their expectations.

Taxi owners that have been in the industry the longest and have a fleet are the decision makers of this industry as compared to the new comers with smaller feet. It can also be recognised that this industry is men dominated. Therefore, for any change to be adopted these group should be consulted. There is need to convince stakeholder beyond any reasonable doubt that the use of these convenience offer far much more advantages than the cost of implementation and servicing them.

The taxi drivers that work on a commission bases are more likely to accept the introduction of convenience payment application on as compared to the target base taxi driver on provision that correct labour conditions are in place such as; basic salary, annual leave etc. On the other hand, the driver employed on the target basis needs to

be assured of their fair share through a modified paper trail that can maintain their independence.

Due to the fact that there is never a long term structural plans for most of the owners in this industry, most owners believe on the “fix as you go” method as it creates a provision for uncertainty avoidance for commuters and taxi drivers as the introduction of technology always comes with many uncertainties. It is important to also note that uncertainty avoidance is not the same as risk avoidance.

5.5.2 Methodological contributions

The nature of this study seeks to explore factors influencing adoption of technology in the mini bus taxi industry which why the best method to use for this study was that of qualitative methodology. Drawing from Denzin and Lincoln (2003) qualitative method is the best methodology to be employed when studying human beings. The use of quantitative research approach utilizes surveys, questionnaires and experiments as data collection instruments as suggested by Hittleman and Simon, (1994). Therefore, quantitative research make use of numerical or statistical data to present statistical results while qualitative research makes use of words to narrate and attempt to understand the phenomena being studied.

The important processes of this study were to observe, investigate and document in details the core factors that the taxi owner, the taxi driver and commuter using a mini bus taxi highlight as key problematic issues when it comes to adoption /acceptance of technology in this industry. This study also investigated the business processes and their impact in decision making of this industry. Hence the use of qualitative research approach was the most effective one.

The research effort determined the influence of payment convenience applications on the mini bus taxi industry. Through revisiting case studies, the study was interpretive and abstracted data by using interviews to establish the world view of interviewees concerning the phenomenon (Riazi, 2015).. Semi structured interviews elicited narrative data that enabled the study to analyse in greater depth the views of all the stakeholders (Roulston, 2010).

Semi structured interviews enabled the study to establish the process with which stakeholders (owners, drivers and commuters) construe the influence of convenience payment application has on the mini bus. The advantage of interviews was not only

limited to elaborate subjective details given by interviewees but the fact that stakeholders could speak with a unique voice and from their work environment (Roulston, 2010). Interviews enabled the study to investigate factors influencing the adoption of payment convenience in the mini bus taxi industry. While observation of the business process for payment of fares allowed for the subject to be observed in its natural format (Oxford, Lin, & Brantmeier, 2018).

5.5.3 Practical Contributions

The research output will contribute towards knowledge of the mini bus taxi industry as well as the industry structure and key factors that are influencing the prevention of adoption of convenience payment applications. The research output if implemented could lead to finding of a convenience payment application that could be suitable for the needs of this industry at a cost that is reasonable to all the stakeholders thus reducing some of the noted key problematic areas that are faced by this industry in the use of cash based system. Due to the fact that the mini bus taxi industry is currently carrying 65% of the country's public transport passengers it means that it has a huge role to play in the future for a sustainable payment system in the South African public transport sector and facilitate better dialogue with government on governance issues.

5.6 Conclusion and Recommendation

5.6.1 Conclusion

Based on literature review and findings abstracted from interviews the study can conclude that the use of convenience payment application has an influence in mini bus taxi industry. The influence is mostly negative based on responses of interviewees. The key determinants that elicit negative response towards convenience payment applications are based on the absence of business processes in this industry. Lack of trust and cost of the use of this application versus the perceived advantages. The central thesis of this study was to explore factors influencing payment convenience in the mini bus taxi industry. The golden thread of this study was the journey to uncover two tenets:

- The mini bus taxi industry cash payment system;
- Mobile payment applications.

Therefore, it can be argued that the mini bus taxi industry has a vital role to play in the informal economy and it notorious for violence. But there is a gap in terms of creating more advanced ways of decreasing and monitoring this industry. Formation of a regulated business process model can assist in solving most of the current problems faced by this industry.

It could, therefore, be argued that the use of mobile payment application is growing rapidly in South Africa and internationally. Because of its convenience, retail stores, private transport and other industries are adopting these convenience payment applications. The gap appears to lie in the adoption of mobile payment applications in the public transport industry (especially that of the mini bus taxi industry) in South Africa. Despite all the different roll out of forms of convenience payment over the years this including the current new wave which is mobile payment, none of them are personalized enough to be used by the mini bus taxi industry in South Africa. This provoked the interest in understanding the factors that are preventing the adoption of payment convenience in this industry.

Although there is some degree of advantage that the use of convenience payment would provide to this industry the perceived dangers that comes with them are far greater as per the views of stakeholders. This includes but not limited to; the potential of job loss, delay in operation, backlash between the different stakeholders, perceived threat of unauthorised access in commuter's privacy and the possible of government interfere through the creation of paper trail that is embedded with the use of convenience payment application. The major barriers are lack of trust between stakeholders and the lack of trust of the application. Furthermore, the findings heightened that the cost of implementation, training and maintenance these convenience payment application in the mini bus taxi industry are far greater than the perceived relative advantages(Chen and Adams, 2014). Limited knowledge of the different convenience payment application and their functionalities is also one of the major barriers.

5.6.2 Recommendation

Based on the literature review and findings abstracted from interviews the following recommendations are proposed. The study identified a range of areas of attention in relation to factors influencing payment convenience in the mini bus taxi industry in Cape Town, South Africa, which are provided in chapter 4.

The following recommendations for research are based on the study findings:

1. More research is needed to identify effective ways of improving transparency between the stakeholders. The research should address structural and business process barriers and how these might be overcome.
2. The limited knowledge when it comes to different payment applications and their functionalities caused stakeholders not to be interested. The evidence points to at least two issues : (1) Training and basic literacy when it comes to the use of technological payment application. Research should explore the impact of enhanced training on use of convenience payment application in the mini bus taxi industry. For example, the impact of increased training on the use of convenience payment application. This would also need to address potential cultural barriers to the effective use of new skills.
3. There is a need to explore whether the introduction of convenience payment applications has a potential embedded threat in job security in this.
4. There is a need to explore public awareness, attitudes towards, beliefs about and expectations of a mini bus taxi service and wider advantages of convenience payment application. Future studies may have to consider conducting a larger and more geographically spread comparative sample between the two different users groups.
5. There is a need to explore which convenience payment application would be suitable for this industry. It is important that the identification of this payment application address their potential impact on preventing unauthorized access. Thus protecting the stakeholders and commuter's privacy.
6. More research is needed to identify effective improved convenience payments that would not interfere with business process thus reducing cost maintaining use of those identified applications. Research should have addressed the cost associated with application and how they can be adjusted to fit this industry.
7. Although the study successfully observed the business process when it comes to payment of fares, our research findings were not able to observe what happens at the end of the trip. Hence, future studies may consider exploring business processes employed on fares collected at the end of the day.

5.7 Limitations and further research

5.7.1 Limitation

Proof about human experience has natural limitations compared to evidence about human behaviour, this is because evidence of experience depends on the participant's willingness and ability to share (Polkinghorne, 2005).

Due to the constant increasing rate of corruption, violence and the sensitivity of the information of the mini bus taxi industry this created a huge barrier in terms of engagement with the stakeholders. The issue of different routes and ruthless taxi

owners also created fear in the drivers that the information they give might end up in wrong hands thus costing them their jobs. The taxi industry is governed by different taxi associations therefore this also causes the owners to be reluctant in their engagement and interest in convenience payment.

Language barriers also prevented drivers that are Afrikaans speaking to express themselves more. A further limitation was experienced during the fieldwork process due to the announcement of the national lockdown by the South African President, all the initially arranged meeting with participants in Phase 2 & 3 that supposed to start during the month of March had to be moved from face to face arrangement to online which commenced in the month of April as to allowed for the new arrangement with the participants. Participants were asked to WebEx meeting application as to allow for the interviews purposes, which led to a huge barrier as some to the participants highlighting that they don not have devices such as the smartphones or laptops and also some struggled with data. As the level eased from level 5 as from the month of May to lower levels the minibus was in fully operation, the use of masks was utilized by both the researcher and the participants.

5.7.2 Further research

Further research could focus on customized convenience payment application that could be used by the mini bus taxi industry to cater for all the stakeholders needs. Further studies can also consider using mixed methods in order to use methodological triangulation in validating qualitative data. Further studies can also do geographical areas between the urban area and the more advance areas in cape town that make use of the mini bus taxi industry.

6. Summary

The chapter dispensed with a concise overview of the first four chapters, pursuant to that research questions were analysed and placed into context of the research topic. The context of the research questions was used to discuss concisely the main findings of the study. Discussion of the main findings informed the discussion of theoretical, methodological and practical contribution of the study. The chapter culminated in discussing limitations and further studies.

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