ADOPTION OF E-BANKING AMONGST SMALL, MICRO AND MEDIUM ENTERPRISES IN THE CITY OF TSHWANE METROPOLITAN MUNICIPALITY

by

Maseribe Maureen Manala

submitted in accordance with the requirements for
the degree of

MASTER OF COMMERCE

In the subject

FINANCE

at the

University of South Africa

Supervisor: Prof A.T. Mutezo

January 2018

DECLARATION

Name: Maseribe Maureen Manala

Student number: 36767751

Degree: Master of Commerce in Finance

ADOPTION OF E-BANKING AMONGST SMALL, MICRO AND MEDIUM ENTERPRISES IN THE CITY OF TSHWANE METROPOLITAN MUNICIPALITY

I declare that the above dissertation/thesis is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

M.M Manala
SIGNATURE

19 January 2018
DATE

ACKNOWLEDGEMENT

Firstly, I would like to thank the Almighty God for the strength that he provided me with through this journey.

I would also like to express my sincere gratitude and appreciation to my supervisor Prof Ashley Mutezo for her guidance, patience, support and sharing her knowledge.

My heartiest gratitude to my fiancé Frans Hlongwane for the support and words of encouragement throughout the journey when things seemed impossible. To my family, thank you for your love and support. To my two daughters, Lesedi and Rhulani this is for you.

To my colleagues in the Department of Finance Risk Management and Banking, thank you for your support, motivation and advice that you give me throughout the journey when everything seemed impossible for me.

Ms. Suwisa Muchengetwa and Dr. Blessing Chiyangwa, thank you for assisting me with the design of the questionnaire and data analysis.

I also like to extent my appreciation to the City of Tshwane Department of Economic Development for allowing me to use their data, without it, this study could have been difficult. My gratitude also goes to the field workers who assisted me with data collection.

.

Finally, I extent my gratitude to all the Small Micro Medium Enterprises owners and managers for participating in the survey; without your participation this study could not have been completed.

ADOPTION OF E-BANKING AMONGST SMALL, MICRO AND MEDIUM ENTERPRISES IN THE CITY OF TSHWANE METROPOLITAN MUNICIPALITY

ABSTRACT

The purpose of this study was to examine the level of adoption, usage and factors that influence the adoption of electronic banking (e-banking) by small, micro and medium enterprises (SMMEs) listed in the City of Tshwane Metropolitan Municipality (CTMM). Despite efforts by commercial banks to promote e-banking (internet and cell phone banking) to its customers, the adoption rate for internet and cell phone banking appears to be low. Based on the literature reviewed, the SMME sector has been widely excluded from the formal banking services. It is also observed that e-banking can enable SMMEs to grow and enter international markets. Technology acceptance model (TAM) integrated with perceived risk theory (PRT) was used to investigate factors that influence adoption and usage of e-banking. The study followed a quantitative research approach. Respondents were selected using simple random sampling technique. A structured survey questionnaire was used to collect the data. The survey was conducted on 160 SMMEs in the CTMM with the assistance of fieldworkers. Data were analysed using descriptive statistics, exploratory factor analysis (EFA), Pearson's bivariate correlation, and multiple regression. The results revealed that perceived ease of use had a significant positive influence on the attitude towards e-banking. Perceived usefulness had a positive but insignificant influence on the attitude towards e-banking. Security risk was the only perceived risk dimension that had a significant negative influence on attitude towards e-banking. However, financial risk, privacy risk, performance risk and social risk had a positive and insignificant influence on attitude towards e-banking. It was envisaged that this study will enable banks to develop strategies that are aimed at increasing their SMME market share.

KEY TERMS: adoption; attitude; cell phone banking; e-banking; internet banking; intention behaviour; Perceived Risk Theory; Technology Acceptance Model; usage

LIST OF ABBREVIATIONS

ABSA	Amalgamated Banks of South Africa
ADT	Automated deposit terminals
ATMs	Automated Teller Machines
CEO	Chief Executive Officer
CTMM	City of Tshwane Metropolitan Municipality
DoI	Diffusion of Innovation
E-banking	Electronic Banking
E-commerce	Electronic Commerce
FNB	First National Bank
GDP	Gross Domestic Product
ICT	Information and Communications Technology
IFC	International Finance Corporation
NCR	National Credit Regulator
NDP	National Development Plan
NPD	National Planning Commission
OBS	Ombudsman for Banking Services
PRT	Perceived Risk Theory
PWC	Pricewaterhouse Coopers
SABRIC	South African Banking Risk Information Centre
SAT	SIM Application Toolkit
SEDA	Small Enterprise Development Agency
SMS	Short Message Service
SPSS	Statistical Package for the Social Sciences
Stats SA	Statistics South Africa
SMME	Small Micro and Medium Enterprise
TAM	Technology Acceptance Model
TOE	Technology-Organisation-Environment
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
Unisa	University of South Africa
USSD	Unstructured Supplementary Service data
WAP	Wireless Application Protocol

TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION AND BACKGROUND

Internet technology is considered to be the third trend of revolution after agricultural and industrial revolution (Singh, 2014:01). According to Sabi (2014:02), the arrival of internet technology has significantly revolutionised the way business and service delivery are executed by companies and businesses worldwide, through electronic commerce (e-commerce). By adopting the innovation, banks developed electronic banking (e-banking) as one of their e-commerce services. Electronic banking or e-banking is also referred to as online banking or internet banking. In this study, e-banking, online banking, internet banking and cell phone banking will be used interchangeably. E-banking is defined as "the use of electronic means to transfer funds directly from one account to another, rather than by cheque or cash" (Meihami, Varmaghani & Meihami, 2013:1299). Moreover, e-banking includes the use of devices such as internet, wireless connection networks, Automated Teller Machine (ATM), phone, and cell phone in banking services. E-banking is perceived to have presented a threat to the traditional branch operations despite the fact that it is still developing and rapidly changing (Chavan, 2013:19). The next paragraph discusses the benefits of e-banking.

The central benefits of e-banking to banks include cost savings, efficiency, enhanced reputation, and better customer service (Nasri, 2011:144). Maduku (2013:79) remarks that e-banking enables banks to magnify their business geographically without spending money starting up new branches. Shahnoori and Jenkins (2015:02) stress that online banking is being accepted as a means of facilitating international trade. However, it is not only commercial banks that benefit from e-banking, but also its customers. The customers' benefits include lower transaction costs, greater control over transactions, time saving and convenient access to services without time or space constraints (Montazemi & Qahri-Saremi, 2015:01). As a result, e-banking has become a strategic necessity for banks as it benefits both banks and customers. The next paragraph discusses the challenges of e-banking.

Adoption of e-banking is not satisfactory as compared to what banks have expected (Nasir, Wu, Yago & Li, 2015:461). Furthermore, Maduku (2014b:121) posits that adoption of e-banking in South Africa is still unsatisfactory. Despite all the benefits of e-banking to banks and customers, there are challenges that both parties are facing with regard to e-banking. As e-banking includes sensitive subjects such as money and the internet, there will always be a risk factor attached that is critical and needs to be measured (Dixit & Data, 2010). Critical factors that impede adoption of e-banking include risk and security concerns (Ameme,

2015:07). According to Nasir *et al.,* (2015:461), banks face a huge challenge in promoting and maintaining safety of e-banking while customers' perceptions about e-banking can prevent its adoption and usage. Nasir *et al.* (2015:461) assert that the banking sector would be best served by a risk management program that is effective. The researchers assert that there are psychological barriers that can impede adoption of internet banking, namely, security risk, privacy risk, performance risk, financial risk, and social risk. The next paragraph discusses theoretical framework underpinning the acceptance of technology.

Majority of banks in developed countries have adopted e-banking whereas developing countries are starting to embrace e-banking (Ameme, 2015:01). In addition, Yeun, Yeow, Lim and Saylani (2010:52) indicate that there is no point for banks to invest in e-banking if the services are not accepted by their customers (Yeun *et al*., 2010:52). Commercial banks need to understand the factors that influence the adoption of e-banking among its customers so that this channel can be adopted. According to Poters (1995) cited in Rissanen (2014:60), adoption means an individually or organisationally made decision to accept or reject an innovation. Several models are used to determine factors that influence adoption and usage of new technology. Among those models are the Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), the Diffusion of Innovation (DOI) and the Perceived Risk Theory (PRT). Specifically, this study adopted TAM and integrated it with PRT to determine the factors that influence the adoption of e-banking. TAM determines the factors that motivate adoption and usage of e-banking. Perceived usefulness and ease of use are the factors that are mainly utilised to determine factors that influence technology acceptance. The next paragraphs discuss small medium and micro enterprises (SMMEs).

SMMEs are one of the entities that use banking services. SMMEs are regarded as engines that drive the economic growth in both developed and developing countries (Khan, 2015:184). In South Africa, it is estimated that SMMEs contribute approximately 40% to gross domestic product (GDP) and 60% to formal employment (Garg & Choeu, 2015:01). Globally, the number of unemployed amount to 200 million, in which unemployment rate for youth is greater than 2.5 times higher than that of adults (International Finance Corporation (IFC), 2013:01). It is estimated that 600 million jobs should have been created by 2020 especially in Africa and Asia to cater for young people workforce (IFC, 2013:01). More importantly, the private sector could assist in attaining this as it plays a critical role in the creation of new jobs needed and fostering growth. Currently, unemployment in South Africa is at 27.7% (Statistics South Africa (Stats SA), 2017:01). The aim of National Development Plan (NDP) of South Africa is to create 11 million new jobs by 2030; consequently, decreasing unemployment rate by 6% (National Planning Commission (NPC), 2012:121). It is estimated that 90% jobs will be created from

SMMEs (NPC, 2012:119). One of the key elements in which this can be attained is by reducing the regulatory burden on small business in order to stimulate investment on small businesses (NPC, 2012:115).

SMMEs in developing countries have a common challenge, which is access to finance owing to the lack of financial statements and collaterals. The SMME sector has been deemed as high risk and costly to serve by financial institutions (IFC, 2014:01). However, the financial institutions' perspectives are beginning to change as they are now targeting the SMME segment as it is perceived to be highly attractive and has profitability prospects (IFC, 2014:01). Successfully serving the SMME market, banks worldwide mentioned that new approach and products meant for this market are required (IFC, 2014:01). The following paragraph discusses benefits of e-banking to SMMEs.

SMMEs can also benefit from the features of e-banking. Shahnoori and Jenkins (2015:02) emphasise that various banks have exceptional online business services for SMMEs in which they (SMMEs) are able to manage their accounts, open letters of credit and open overseas bank accounts. Shahnoori and Jenkins (2015:03) stresses that e-banking can improve productivity of SMMEs and transparent trade transactions can enable SMMEs to expand their markets. E-banking could enhance SMMEs' ability to secure financing owing to its transparent transactions (Havasi, Meshkany & Hashemi, 2013:45). The survey conducted by Beck, Demirgüç-Kunt and Martinez Peria (2008:06) indicates that approximately 81% of banks in the developed countries and 72% from developing countries perceive significant prospects in the SMME segment. Despite the significant role that SMMEs play, they are financially excluded from the banking sector. Given the significance of SMMEs in the South African economy and banking sector, it is crucial to understand the factors that influence the adoption of e-banking among SMMEs.

According to Pricewaterhouse Coopers (PWC) (2013:48), South African banks are investing significantly in technology. Similarly, Maduku (2014a:67) also asserts that South African banks are investing substantially in the distribution of e-banking. The research conducted by comSCORE (2012) shows that e-banking penetration for developed countries ranged between 25% and 46% while Africa ranked the lowest with approximately 8.8%, compared to all developed countries. Finscope consumer survey (2013:50) indicates that cell phone banking penetration is approximately 25% and 11% on internet banking in South Africa. Maduku (2013:78) remarks that to encourage e-banking, banks in South Africa charge premium prices for customers who do banking services over-the-counter and lower prices for those who use e-banking. Nevertheless, adoption and usage rate of e-banking in South Africa

remain very low. Availability of e-banking does not guarantee adoption and continuous usage (Ma, Andersson & Streith, 2005:388). Adoption does not guarantee continuous usage of e-banking among customers. E-banking can be adopted but not being used owing to the risks that are associated with it. Therefore, it is also crucial for banks to know the extent of usage of e-banking amongst their customers. The next paragraph discusses the empirical studies on e-banking uptake in South Africa.

Although research on adoption of e-banking has been conducted on an individual perspective in South Africa (Wu, 2005; Brown, Cajee, Davis & Stroebel, 2003; & Maduku, 2011), limited research has been conducted from the SMMEs' perspective. Furthermore, SMMEs are encouraged to enter international markets by policy makers in many countries (Shahnoori & Jenkins, 2015:01). Dilver (2015:131) stresses that SMMEs in developing countries are found to be slow in adopting new technology for their businesses owing to "lack of awareness by owners and managers, skills and training, government support, and limited understanding of the required knowledge". This study adopted TAM model incorporating it with PRT model. Specifically, the focus of the study was only on mobile banking (internet and cell phone banking). The reason for the choice of cell phone and internet banking is that e-banking will enable SMMEs to access funding, enter international markets and improve their productivity. The purpose of this study was to fill the gap by investigating the factors that influence and impede the adoption and usage of e-banking among SMMEs in the City of Tshwane Municipality (CTMM). The next section discusses the problem statement.

1.2 PROBLEM STATEMENT

There is a consistent growth in terms of electronic transactions (internet banking from 7% to 11% between 2012 and 2013 while mobile banking penetration has gone from 25% to 28%) (Oxford Business Group, 2014:57). Even if e-banking provides a fast and convenience way to perform transactions, customers are still hesitant to adopt and use it. Commercial banks have made an effort to encourage the usage of e-banking through advertisement and charging higher premium for those who conduct their transactions over-the-counter and low charges for those who make use of e-banking. Despite their effort to promote adoption and usage of e-banking to their customers, the adoption rate of e-banking in South Africa remains unsatisfactory. Commercial banks are investing substantially in the development of e-banking owing to its benefits (Maduku, 2014b:121). There is no point for commercial banks to invest in e-banking if it is not accepted by banking customers. According to Ameme (2015:03), "banks do not fully understand the way customers experience banking websites, as customers generally do not have a platform on which to voice their frustration with online services". The

following paragraph discusses empirical research studies on e-banking conducted in South Africa.

Empirical research has been conducted in South Africa only on individual perspective regarding e-banking. Banks should have different approaches in targeting different groups of customers. SMMEs contribute substantially to the economy (approximately 60% to employment and 40% to GDP) (Garg & Choeu, 2015:01) and provide good profitability prospects to banks (IFC, 2010:16). Despite their importance, SMMEs are still experiencing problems such as accessing bank finance, skills, infrastructure, and low computer and internet penetration. SMMEs in South Africa are financially excluded from the formal banking sector owing to high transaction costs associated with small cash-based transactions (NCR, 2011:09). Furthermore, SMMEs are exposed to high risk of robbery, a problem that has overwhelmed law enforcement agents (Olawale & Garwe, 2010:732). Moreover, SMMEs find it challenging to adopt and manage new technology owing to lack of knowledge of the technology, its potential and other significant characteristics (Dilver, 2015:130).

To the researcher's knowledge, there is limited research that captures factors that motivate or inhibit the adoption of e-banking by SMMEs in South Africa (Wu, 2005; Shambare, 2011). Furthermore, the goal of developing countries is to encourage their SMMEs to take part in international trade and to secure international markets (Shahnoori & Jenkins, 2015:04). Moreover, the above-mentioned studies' focus was on the factors that motivates the adoption of e-banking.

Nevertheless, the adoption of e-banking alone does not guarantee a continuous usage of e-banking. The availability of e-banking does not guarantee the adoption of the service by SMMEs. Understanding the factors that encourage or impede adoption and continuous usage of e-banking from the customer's viewpoint is vital to harmonise and improve e-banking.

1.3 THE SIGNIFICANCE OF THE STUDY

In the rapidly evolving ICT environment, there is need to understand the determinants for technology acceptance. This is crucial in order to obtain necessary insights to face challenges in emerging markets for policy, marketers, as well as researchers to better facilitate individual adoption (Verdegem & De Marez, 2011:411). The development of e-banking has allowed SMMEs to easily access banking services anywhere in the world at reduced costs and take part in international trade (Shahnoori & Jenkins, 2015:04).

Furthermore, for policy purposes, the understanding of why SMMEs do not adopt or use e-banking is strongly important in the light of the development of an inclusive information society and bridging the digital divide especially for the SMMEs sector. The latter presents a hugely untapped and potential growth segment in developing countries. SMMEs can benefit immensely from the use of e-banking services to improve their sustainability and create jobs as shown by case studies outlined in the literature review. At the same time, the findings of this study will enable banks to develop strategies that are aimed at increasing their SMME market share. The study provides a comprehensive picture of the current affairs in local business world towards the development of e-banking, and will contribute to the existing body of knowledge by identifying factors that influence or inhibit adoption of e-banking among SMMEs. This study also supports South Africa's National Development Plan (NDP) 2030 initiatives to increase investment infrastructure on small businesses; ensuring that all policies are supportive through lowering barrier to entry, reducing regulatory red tape and providing entrepreneurial environment for business development (NPC, 2012:115). E-banking adoption around the globe has the ability to increase economic growth and improve unemployment in developing and emerging nations where a large percentage of the population lives in poverty (Kauffman & Webber, 2011).

1.4 RESEARCH OBJECTIVES

The primary objective was to investigate the factors that influence adoption and usage of e-banking among SMMEs in the CTMM. The secondary objectives were as follows:

- To determine the factors that influence usage of e-banking among SMMEs in the CTMM.
- To determine the influence of intention to adopt e-banking on actual usage of e-banking.
- To determine the influence of perceived usefulness and attitude towards e-banking on intention to adopt e-banking.
- To determine the influence of perceived ease of use on perceived usefulness.
- To determine the influence of perceived usefulness, perceived ease of use, security risk, privacy risk, performance risk, financial risk and social risk on attitude towards e-banking.

1.5 RESEARCH METHODS

Three research design methods can be used to answer the research objectives. These are quantitative, qualitative and mixed methods. The quantitative approach was deemed appropriate for this study. De Vos, Strydom, Fouchè, and Delport (2011:64) point out that quantitative research is an investigation into a social or human phenomenon, based on testing a theory composed of variables, measured with numbers and analysed with statistical procedures in order to determine whether the predictive generalisation of the theory holds true. The study was explanatory in nature.

According to Bryman, Bell, Hirschsohn, Dos Santos, Du Toit, Masenge, Van Aardt and Wagner (2014:170), probability and non-probability sampling are required in selecting a sample from the sampling frame. The target population for this study consists of SMMEs registered in the CTMM economic development database list. CTMM was chosen because it has characteristics of a smart city. Consequently, there is an opportunity and support for business growth. Simple random sampling technique was utilised to select the sample size of 243 SMMEs.

The research instrument was pilot tested prior to conducting the main study. A cross-sectional data was collected using closed-ended survey questionnaires. About 243 questionnaires were distributed with the assistant of three trained workers, of which 160 questionnaires were returned, representing a response rate of 66%.

The Statistical Package for the Social Sciences (SPSS) was used to analyse data collected. Descriptive statistics such as percentages, mean and standard deviation were used to summarise data. The research instrument was subjected to a reliability test using Cronbach Alpha. Exploratory factor analysis was conducted to determine the underlying relationships between measured variables. Pearson correlation coefficient analysis was used to determine the correlation between variables. Multiple and stepwise regression were used to determine factors that influence and adoption of e-banking. Owing to financial and time constraints, the study was conducted in the CTMM. Therefore, the results of the study were only generalised to SMMEs in the CTMM.

Ethical consideration procedures were adhered to by obtaining approval from Unisa's Ethics Committee, approval to use CTMM database list, signed consent letter from participants and informed consent about the study was issued to participants during the survey. The next section focuses on chapter overview.

1.6 CHAPTER OVERVIEW

Chapter 1: Introduction and background: This chapter provides introduction and background for this study

Chapter 2: Literature Review: This chapter comprises of a comprehensive overview on e-banking and its attributes; an overview of SMMEs and their characteristics; an overview of CTMM; and a theoretical framework.

Chapter 3: Research Methodology: This chapter provides a comprehensive picture of research methodology, research design, method of collecting data and data analysis, reliability, validity, limitations, and ethical considerations.

Chapter 4: Research Findings: This chapter emphasise on the results of the research. The research findings are compared to the literature findings.

Chapter 5: Conclusions and Recommendations: This chapter provides the final summary, core findings, suggestions for future research, recommendations, and conclusions.

1.7 CONCLUSION

This chapter has introduced the background of this study, discussing the benefits and risks of e-banking. The problem statement was discussed and the research objectives of this study have been identified. The methodology employed in this study was briefly discussed. While the study of adoption of e-banking is widely studied worldwide on individual perspective, a review of literature reveals that limited research has been conducted on the SMME segment perspective. In the next chapter, banking theory, e-banking and its benefits, and SMMEs are reviewed.

CHAPTER 2: LITERATURE REVIEW

2.1. INTRODUCTION

The previous chapter has provided the background of this study. This chapter presents the literature review. The purpose of this chapter is to review the existing literature on e-banking and SMMEs. The chapter begins with the importance of banks in the economy, provides an outline of South African banks, electronic banking concept, the concept of SMMEs in South Africa, and theoretical framework. The following section discusses the importance of banks in the economy.

2.2 THE IMPORTANCE OF BANKS IN THE ECONOMY

Banks were basically used as vaults where people store valuables and have developed into financial institutions that accept deposits and dispense loans to the consumers (Cecchetti and Schoenholtz, 2015:04). The word 'banks' encapsulates commercial banks, savings and loan associations, mutual savings banks, and credit unions (Mishkin 1992:09). Mishkin (1992) remarks that banks are important to the economy because they do the following:

- Provide a channel for linking those who want to save with those who want to invest.
- Play an important role in determining the quantity of money in the economy.
- Have been one source of the rapid financial innovation that is currently expanding the ways that customers can invest savings.

Saunders and Cornett (2012:349) remark that commercial banks are important in the following:

- They play a key role in the transmission of monetary policy for the central bank to the rest of the economy.
- Their efficiency in providing payment services directly benefits the economy.
- They offer maturity intermediation services to the economy.

The next subsection discusses innovation in the banking industry.

2.2.1 The roles of bank in innovation

According to Mishkin (2004:324), transformation in the economic environment will stimulate a search for innovations that are likely to be profitable. The author point outs out that innovation is the end-result of drastic changes in the economic environment. Due to these changes, the financial institutions' way of executing and delivering services was no longer profitable and their products were no longer selling (Mishkin, 2004:324). In order to survive, financial institutions had to research and develop new products and services that would meet customers' needs and prove profitable; and this is referred to as financial engineering. It is further explained that in this instance, necessity was the mother of innovation (Mishkin, 2004:324). Financial innovation is composed of responses to changes in demand conditions, responses to changes in supply conditions, and avoidance of existing regulations (ibid). Financial innovation is defined as something new that reduces costs, reduces risks, or provides an improved product, service or instrument that better satisfies financial system participants' demand (Frame & White, 2014:04). The following paragraph explains the types of financial innovation mentioned earlier.

Responses to changes in demand conditions, is due to drastic changes in inflation and interest rate, which was hard to predict (Mishkin, 2004:325). Responses to changes in supply conditions are owing to improvement in computer and telecommunications technology called information technology (Mishkin, 2004:326). The role of technology in financial innovation is to lower the costs of production and possibly the costs of entry as well. (Howells and Bains, 2002:490). The effects of this technology are as follows: firstly, it has dropped the cost of processing financial transactions, making it profitable for financial institutions to create new financial products and services for the public (Mishkin, 2004:326). Secondly, it has increased the speed of supplying services and changed the relationship between the supplier and consumer of financial services (Howells and Bains, 2002:491). Electronic banking offers financial products that lower the cost of bank transactions by having customers interact with an e-banking facility rather than with a human being (Frame & White 2014). Avoidance of existing regulations occurs in response to changes in demand and supply conditions (Mishkin, 2004:329). Since the banking industry is more heavily regulated than other industries, government regulation is a greater motivation to innovation, of which banks create incentives for firms to avoid these regulations (Mishkin, 2004:329). The next section discusses outline of South African banks.

2.3 OUTLINE OF SOUTH AFRICAN BANKS

The South African banking industry consists of 17 registered banks, two mutual banks, 14 local branches of foreign banks, two cooperative banks and 43 foreign banks with approved local representative offices (The Banking Association South Africa, 2014:01). The five major banks in South Africa are: Amalgamated Banks of South Africa (ABSA), First National Bank (FNB), Standard bank, Nedbank and Capitec bank. Major banks in South Africa share the same strategies which among others, include channelling innovation, improving customer needs across the wholesale SME and retail customer segment (PWC, 2016:07). The next section discusses electronic banking.

2.4 ELECTRONIC BANKING

According to Giordani, Floros and Judge (2014:586), “the end of information technology boom has led to a consolidation of online technologies, as well as in the banking sector”. By adopting the innovation, banks developed electronic banking (e-banking) as one of their e-commerce services. E-banking represents different services such as “automated teller machines (ATMs), telephone banking, banking using a personal computer, television-based banking, internet banking and mobile banking” (Maduku, 2014a:67). Recently, the term “e-banking” is broadly used to describe banking products and services that need utilisation of digital, internet and mobile technology (Maduku, 2014a:67). Singh (2014:02) asserts that mobile banking is used for performing balance checks, account transactions and payments. Nowadays, short message service (SMS) or mobile internet are utilised to perform mobile banking (Singh, 2014:02). Furthermore, Singh (2014:02) explains that mobile phone banking services include “funds transfer, managing deposits, sending checkbook request, checking transactions, and so on”. A summarised definition of e-banking is depicted in Figure 2.1 below.

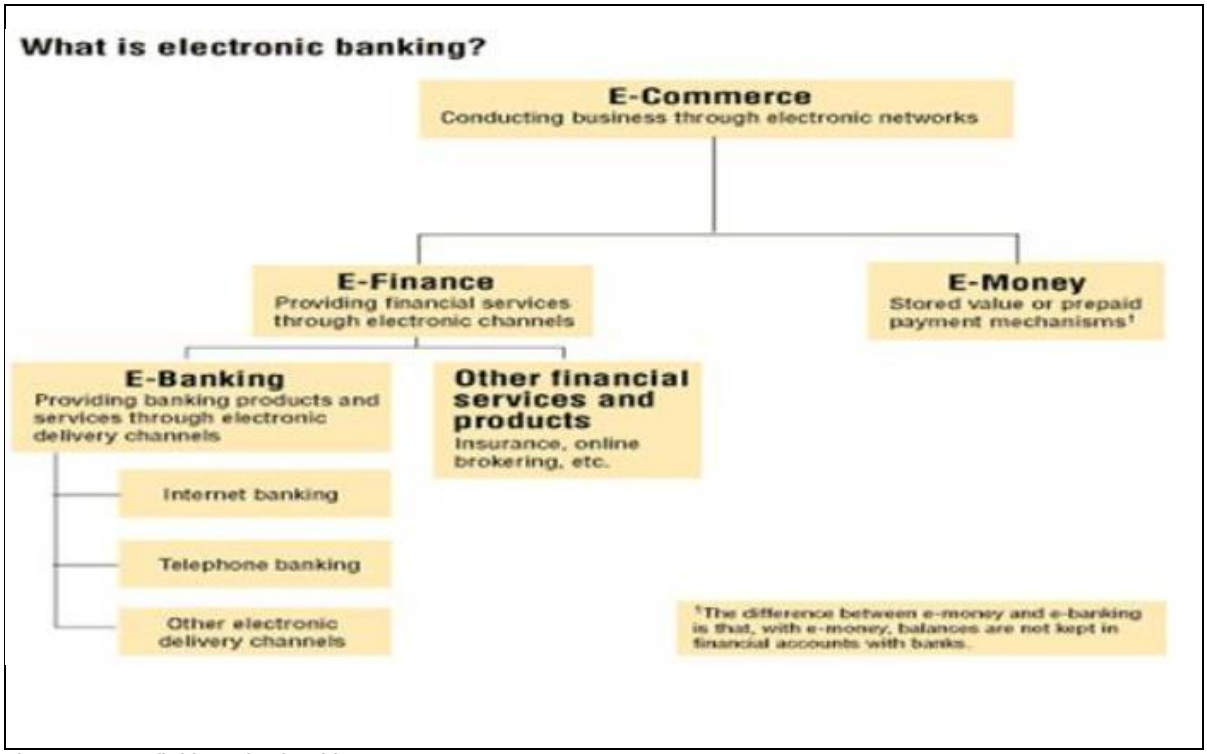

Figure 2.1: Definition of E-banking

Source: Chavan (2013:20)

The next paragraph discusses types of internet banking.

Types of internet banking

The U.S. Department of Treasury as cited by (Maduku, 2011:20) mentions that there are three types of internet banking:

- Informational internet banking – “a fundamental level of online banking that does not allow patrons to view or maintain accounts nor does it allow for communication between the financial institution and customers. This is meant for marketing purposes only, and there is no connection to the bank’s main computer system”.
- Communicative online banking – “it allows for some communication between patrons and banks. However, it is limited to fundamental interactions such as account enquiries, new account updates, loan or mortgage applications, contact information updates, and balances”.
- Transactional internet banking – “the most popular online banking type. It includes full control over one’s accounts, including deposits, transfers, updates and online payments”.

Types of cell phone banking

According to Maduku (2011:32), types of cell phone banking are as follows:

- Short Message Service (SMS) – “it allows users to send and receive text messages on a mobile phone using the numbered keypad on the handset to input characters”.
- Unstructured Supplementary Service data (USSD) – “is a menu driven form of SMS where a customer would receive a text menu on their phone opposed to a string of words. It can be used to process balance inquiry, money transfer, bill payment, and airtime top-up”.
- Wireless Application Protocol (WAP) – “is described as internet on a mobile phone. It provides an industry-wide specification for developing applications that operate on mobile telecommunications networks and transmit internet content on mobile devices irrespective of the transmission technology used by network carriers”.
- J2ME (Java 2 Micro Edition) – “is a feature that allows a device to run small, user-installable software applications written especially for mobile devices such as phones”.
- SIM Application Toolkit (SAT) – “is a GSM standard for extended communication between a SIM card and a mobile device. It allows a service provider or bank to house the consumer’s mobile banking menu within the SIM card”.

The next subsection discusses the benefits of e-banking to customers.

2.4.1 Benefits of E-Banking to banking customers

According to Mutengezanwa, Mauchi, Dube, and Gombarume (2014:115) e-banking benefits include the following:

- Time saving.
- Convenience.
- Accessibility.
- Conformation.
- Range.
- Security.
- Safety.

Chavan (2013:22) and Maduku (2013:79) also identified funds management as another benefit of e-banking. Chavan (2013:22) states that “what if” analysis can be done on personal computer prior any transaction on the web by downloading different accounts. After discussing how beneficial e-banking it is to customers, it is essential to discuss its challenges too in order to give a comprehensive picture of e-banking to customers. In the next subsection, the study discusses the challenges of e-banking to customers.

2.4.2 Challenges of E-banking to banking customers

Ozuru, 2010 in Chavan (2013:19) accentuates that “the importance of electronic payment system in any country can never be over emphasized owing to the dramatic transformation in technological advancements that is being experienced by the global financial industry”. E-banking requires certain skills and infrastructure for it to be used and adopted. Customer unfamiliarity with internet is considered as a major hindrance to uptake of e-banking as they feel at a disadvantageous position and become reluctant to utilise e-banking (Havasi et al., 2013:40). E-banking also poses certain technological problems. According to Masocha, Chiliya and Zindiye (2011:1859), basic technological problems that can impede e-banking include the following:

- Technological developments prompt results in different barriers in different countries, language barriers, limited internet access, different legislation and logistical barriers.
- Web technology may not be user-friendly.
- Security fears increase (fear of being hacked).
- E-commerce is not suitable for certain products and services, for instance where face-to-face communication is very vital this hinders e-banking.
- Information overload to consumers.

In India, there is no commercial bank, which has fully specialised in the small business segment (Chavan, 2013:23). Wolverton (2002) as cited by Matthew (2013:22) highlights challenges that are associated with the usability of cell phone applications, namely,

- Small screens – less visible options at any given time.
- Difficult input of information, particularly for typing.
- Download delays – getting the next screen takes forever.
- Badly designed sites – websites are normally advanced for desktop usability and it does not cater for mobile access.

Having discussed the benefits of e-banking to customers, it is essential to discuss the benefits in the banking sector. The next subsection discusses the benefits of e-banking to commercial banks.

2.4.3 Benefits of E-banking to commercial banks

According to Chavan (2013:24), e-banking revolution has primarily changed the business of banking by eliminating borders and bringing new opportunities. One of the benefits of e-banking to banks is the fact that it is operating on digital media, and banks can save big money by developing extra software or infrastructure (Nasir *et al*., 2015:461). E-banking also increases customer satisfaction through its flexibility (Chavan, 2013:24). Through e-banking banks can deliver their services at minimum cost (requires less staff and reduce paper work) (Nasri, 2011). Other benefits include extended geographic reach (Chavan, 2013:24). The next subsection discusses the challenges of e-banking to commercial banks.

2.4.4 Challenges of E-banking to Commercial banks

According to Nasir, *et al.* (2015:461), e-banking has not only brought opportunities but also serious challenges for the banking sector improvement, which is important for any economy. Nasir *et al.* (2015:461) remark that adoption rates of e-banking seemed to be unsatisfactory compared to what banks have expected. The researchers elucidate that banks face extreme challenges in encouraging and sustaining safety of e-banking. According to the researchers, the reason is that banks are required to fulfil their customers' needs in order to compete. On the contrary, those needs may be composite or tough for banks to accomplish as they are concerned with responses to environmental changes to new technology development and security updates (Nasir *et al*., 2015).

According to Gautman and Khare (2014:55), recent major issues in e-banking include technological issues such as security and privacy. Security issues can be categorized as violation with serious criminal intension, such as violation by hackers; imperfection in systems design; and execution matters, where e-banking designers are faced with challenges such as legacy system integration and delivery of the integrated service across multiple channels, each with different presentation, service management and security capabilities (Omariba, Masese & Wanyembi, 2012). Chavan (2013:24) highlights that e-banking worsens traditional banking risks; as it poses operational, reputational and legal risks. Consequently, the risk involved with online banking is crucial in this case.

Another challenge that banks are faced with is fraud. Nasir *et al*. (2015:462) point out that e-banking fraud surpasses actual branch bank robbers. Furthermore, the researchers indicate that fraud is a critical threat to banks, in that, even if banks are trying their best to ensure safety and security of their customers' account, there is still a growing concern over the security of e-banking by its customers. In other words, risk and security are critical to online banking as it can hinder the adoption and usage of online banking. On the contrary, it makes it difficult for banks to encourage the usage of online banking to its customers. According to Nasir et al. (2015:462), it does not only hinder the adoption and usage of online banking, but also leads to operational risk, long-term reputational risk, and legal risk. Operational risks associated with e-banking include misuse of confidential and personal information, business disruption and system failures, and failed or erroneous transaction processing (Sravanthi, 2016:40). The next subsection discusses the evolution of e-banking.

2.4.5 E-banking fraud

Malware has been identified as a key trajectory in which malicious application gets to mobile devices (SANS Institute, 2012:13). The Central Bank of Bangladesh was attacked by cyber criminals, of which, money was stolen (Kaspersky Lab, 2016:10). In February 2016, 80 million dollars was stolen from different banks in the United States including New York Federal Reserve Bank (Kaspersky Lab, 2016:11). In the first quarter of 2016, Kaspersky Lab Solutions managed to block attempts to launch malware capable of stealing money via online banking on 459 970 computers (Kaspersky Lab, 2016:28). The following paragraph discusses online banking fraud in South Africa.

The complaints lodged to the South African Banking Ombudsman (OBS) regarding internet banking mainly involved phishing, cell phone transactions and SIM card swap (OBS, 2016:08). The demographic profile of complaints from OBS indicates that banking customers from the age of 40 years and above, accounting for 66% are the most vulnerable victims of technology (OBS, 2016:16). Moreover, those that are less than 30 years (12%) are less likely to become victims of frauds technology as they are familiar with technology (OBS, 2016:16).

In terms of complaints logged in 2016 per category, ATM fraud has the highest percentage (28%), followed by internet banking fraud, which accounted for approximately 20% (OBS, 2016:19). Furthermore, most of internet banking complaints was cell phone banking complaints, which have increased by 7%, since the year 2015 (OBS, 2016:19). Customers who have fallen victim of SIM swap fraudulent activities reported that commercial banks and

network operators claimed no liability in this incident (Vermeulen, 2017). The next subsection discusses the e-banking risk control measures.

2.4.6 E-banking risk mitigation controls

According to Young (2014:26), technological risk exposures can be prevented through data protection (involves firewalls to prevent viruses); physical protection (include security measures and password measures to prevent fraud). To mitigate online fraud, commercial banks have developed strong firewalls and strong authentication and encryption. Strong authentication is very important for mobile devices as they are easily lost and stolen (SANS Institute, 2012:22). Security control such as firewalls, strong authentication and encryption have not met the level of maturity needed (SANS Institute, 2012:02). SANS Institute (2012:02) postulates that there are measures such as customer education, payment technology and fraud preventive and detective controls that can be applied to mitigate risks. According to SANS Institute (2012), customers should be educated on the preventative and detective controls to prevent fraud. SANS Institute suggests that customers should be educated about the following:

- The importance of having strong passwords; as a lost or stolen device without password will result in data breach, loss of personal information and loss of intellectual property and trade secrets.
- The importance of updating operating systems and installed applications.
- The danger of jail broken devices.
- The implementation about the encryption and anti-virus.
- The implementation of a remote wipe, so that in case where the mobile device gets lost the owner can remotely wipe their device.
- Being cautious when downloading applications.

The next subsection discusses the evolution of e-banking in South Africa.

2.4.7 Evolution of E-banking in South Africa

Internet World Stats (2014) indicates that South Africa was positioned the third for internet usage in Africa with 24.9 million users of internet, which constitute 51.5% of its population. Recently, four big banks dominate the South African Banking sector, namely, ABSA, Standard Bank, FNB, and Nedbank. These banks offer electronic banking services and Capitec Bank

later joined them. Internet banking started in 1996 in South Africa (Sigh, 2004:190). ABSA was the first bank to offer online banking, followed by Nedcor, and Standard Bank, FNB, and Mercantile Bank, in turn, followed suit (Sigh, 2004). According to a South African banking survey conducted by PWC (2013:51), banks are forecasting that branches will decrease by approximately 21% (from 2910 to 2285) by 2016, because banks are planning to reduce the number of walk-in branches.

In 2008, FNB started rolling out advanced ATMs (cash accepting ATMs), known as automated deposit terminals (ADTs), which scans cash and cheques and allows for the deposited cash to be credited immediately (Business Day, 2013). All commercial banks in South Africa have installed this technology; in other banks like FNB, cash is no longer deposited inside the bank; it is only done at the ATMs. Cell phone banking in South Africa was first launched in 2011 by FNB and the other banks followed suit (Tullett, 2012).

According to PWC (2013:49), the exploitation of the potential use of smartphones for electronic banking purposes should be priority for banks. The Big Four banks have introduced cardless services in their ATM, where their customers transfer and deposit money. Some of the Big Four banks charge higher rates for customers who deposit and transfer money over-the-counter whereas some are no longer allowing customers to make deposits using teller terminals. It is clear that walk in branches will disappear because of the ongoing mobile banking activities. The next subsection discusses internet and cell phone penetration in South Africa.

2.4.8 Internet and cell phone penetration in South Africa

Internet banking is derived from internet technology. According to Omariba *et al.* (2012:434), as internet access continues to expand, the convenience associated with electronic banking would attract more customers. Africa has 9.8% for internet users compared to other countries (Internet World Stats, 2015). Internet World Stats (2015) indicate that internet penetration of the population in Africa is approximately 28.6% (See Figure 2.2 below).

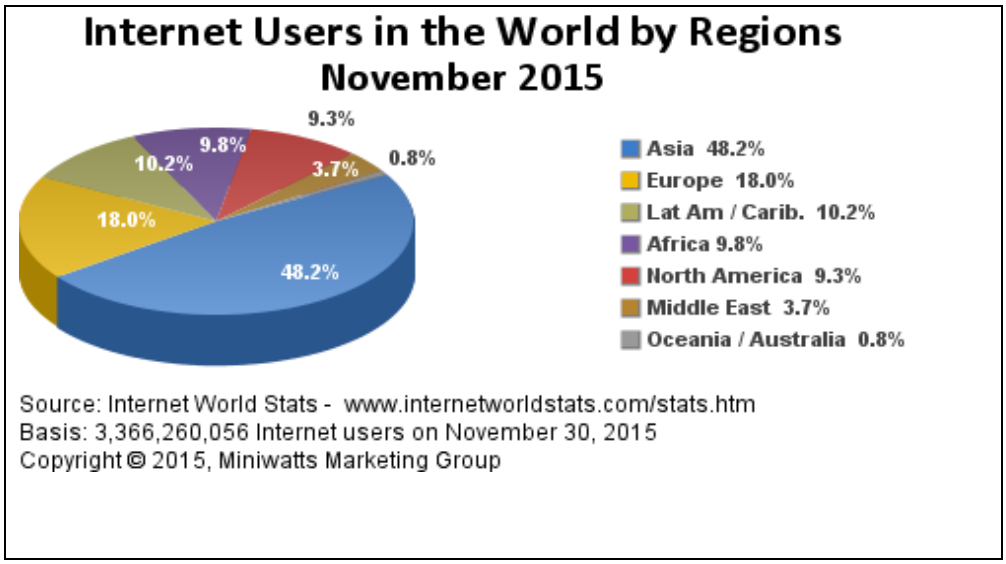

Figure 2.2: Internet Users

Source: Internetworldstats

Internet usage is growing slowly in Africa as indicated by a growth of approximately 7.23% as from 2000 up to November 2015 (Internet World Stats, 2015). The report by Internet Word Stats indicates that in South Africa approximately 49% of the total population use internet. However, cell phone penetration seems to be higher in South Africa; as it exceeds the total population. According to htxt.Africa (2014), mobile penetration in South Africa is 133%, simply because majority of people own more than one cell phone. Therefore, access to internet and cell phone is central to the adoption and usage of e-banking (See Figure 2.3 below for internet penetration).

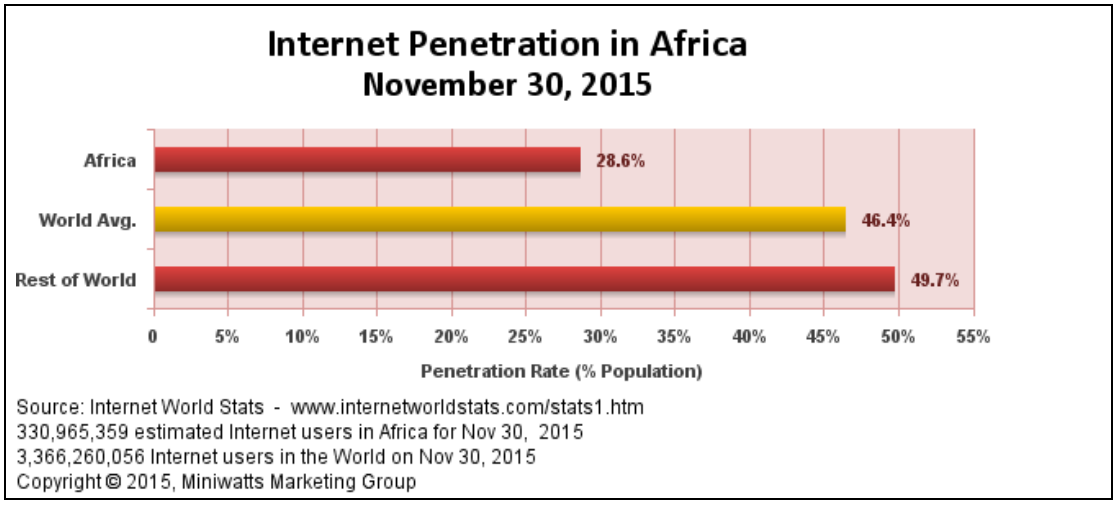

Figure 2.3: Internet penetration in Africa

Source: Internet World Stats

The next subsection discusses the usage of e-banking in South Africa.

2.4.9 E-banking usage in South Africa

According to Van Zyl (2015), the statistics show that there is approximately 25 million people using banking services in South Africa, of which 14 million have internet access and only 2.3 million use internet banking services. The study conducted by Mosacha *et al*. (2011:1862) in Alice Town in the Eastern Cape shows that the adoption rate of e-banking in South Africa is low. The research shows that the number of customers who have internet access and never used internet and cell phone banking is higher. The next paragraph discusses online and cell phone banking usage of customers in South African commercial banks.

Kaspersky Lab Survey (2015) postulates that approximately 43% of South Africans feel that traditional over-the-counter transactions are safer than internet banking, whereas approximately 64% feel vulnerable when conducting online banking. Kaspersky Lab (2015) reports that the customers' choice of over-the-counter transactions owing to security reasons will hinder the adoption of high-margin online and mobile payment. According to Kaspersky Lab Survey (2015), financial threat ranks the third, with approximately 74% of South Africans being concerned with losing their money from their accounts. Having discussed all the benefits and challenges of e-banking, it is important to establish its drivers and hindrance on SMMEs. SMME segment is one of the sectors that make use of the banking services.

2.4.10 E-banking risk mitigation in South Africa

The South African Banking Risk Information Centre (SABRIC) indicates that while banks are constantly providing cyber security messages and advice to their customers, cyber criminals are also inventing means to steal from customers (SABRIC, 2016). SABRIC has embarked on a national campaign called 'Skelm' to encourage bank customers to manage their cyber security (SABRIC, 2016). The campaign was aimed at enabling banking customers to share their experiences of scams and this will be on various social media platforms. SABRIC has provided tips for banking customers in order to protect themselves against cyber fraud:

- Enabling the lock screen and security function on smartphones such as password or fingerprint screen lock.
- Not to save sensitive personal information and bank account details on electronic devices.
- Be considerate before downloading apps on mobile or tablet devices.
- Download and install the security software provided by bank.

- Disable wireless connection settings (e.g. Bluetooth, Wi-Fi and NFC) when not in use.
- Not bypass built in security measures by 'rooting' device.
- Using strong passwords for all accounts, changing them regularly and never share them with anyone else.
- Be cautious of email attachments and free software from unknown sources.
- Always set privacy settings on social media profile to the highest level possible.

The next section discusses the concept of SMMEs.

2.5 THE CONCEPT OF SMMEs

The role of SMMEs is gradually seen as important to economic growth in many developing countries, including South Africa. SMMEs worldwide contribute substantially to the economy through job creation and poverty elimination. IFC (2010:09) emphasises that "a common definition of SMMEs includes registered businesses with less than 250 employees". However, there is no consensus on the definition of SMMEs. In South Africa, a small business is defined according to National Small Business Amendment Act of 2003 and 2004. Accordingly, a small business is "a separate and distinct business entity, including co-operative enterprises and nongovernmental organisations, managed by one owner or more which includes its branches or subsidiaries, if any, is predominantly carried out in any sector or sub sector of the economy mentioned in the schedule of size standards and can be classified as SMME by satisfying the criteria mentioned in the schedule of size standards" (NCR, 2011:24). The term SMME and SME are used interchangeably in South Africa (NCR, 2011:24). SMMEs in South Africa are categorised into distinct groups, namely, survivalist, micro, very small, small and medium enterprises (NCR, 2011:24) (see Table 2.1 below).

Table 2.1: Definition of SMME in South Africa

Enterprise size	Number of employees	Annual turnover	Gross assets, excluding fixed property
Medium	<100 to 200, depending on industry	R5m to R64m, depending upon industry	R3m < R23m, depending on industry
Small	20 < 50 depending on industry	R3m to R32m, depending on industry	R1 < R6m, depending on industry
Very small	< 10 to 20, depending on industry	R500k to R2m, depending on industry	< R500k to R2m, depending on industry
Micro	< 5	< R200k	< R100k

Source: NCR (2011:25)

Table 2.2: Definition of SMMEs in Ghana

Country	Enterprise Size	Number of Employees	Annual Turnover	Balance Sheet Total
Ghana	Medium	< 250	≤ €50m	≤ €43m
	Small	< 50	≤ €10m	≤ €10m
	Micro	< 10	≤ €2m	≤ €2m

Source: Charles, Amakwaa and Owusu (2015:11)

In this study, the definition of SMMEs is in terms of revenue. The reason why revenue is being used to classify SMMEs is that there are small businesses that have revenue of more than a million rand with not more than five employees and no physical offices. The next paragraph discusses the critical role that SMMEs play in the economy.

Olawale and Garwe (2010:729) remark the input of SMMEs cannot be sustained without the new SMMEs. They contribute about 66% for employment in worldwide (IFC, 2013:05). In China, SMMEs are regarded as a backbone because they have signified its economic growth since the beginning of economic reform in the late 1970s (Tsai, 2015:03).

According to Fanta (2015); Razak and Othman (2012:163); and Asah, Fatoki and Rungani (2015:308), SMMEs play a critical role in the following ways:

- Create employment opportunities in the secondary market to low skilled and unskilled job seekers who otherwise remain jobless:
- Are secondary choices for employees when large firms lay off in times of economic downturn.
- Contribute to national output.
- Assist larger firms by supplying intermediate products.
- Owing to their ability to make quick business decisions, they are considered more efficient in utilising resources.
- Narrowing income gap and poverty alleviation.

In the South African perspective, the importance of the SMME sector according to IT Web as in Cant, Erdis & Seshapo (2014:568) include the following:

- SMMEs are the engine of growth of the economy.
- SMMEs are essential for a competitive and efficient market, which will contribute to more competitive prices.
- SMMEs are critical for poverty reduction.
- SMMEs play a particularly important role in developing countries as mainstream business can create only a certain number of jobs and in selected sectors.

The next subsection discusses the challenges faced by SMMEs.

2.5.1 Challenges of SMMEs

Despite the prominent role that SMMEs play in the South African economy, SMMEs are still experiencing challenges that impact on their survival. Strydom (2017:685) highlights that the failure rate of SMMEs in South Africa is approximately between 70 and 80%. According to Olawale and Garwe (2010), SMMEs are constrained by the following obstacles:

- Lack of access to finance.
- Lack of management skills.
- Lack of information technology.
- Crime and corruption.
- Location and networking.
- High interest rate.
- High transport costs.
- Shortage of skilled labour.

The study conducted by Cant et al. (2014) found that the challenges experienced by SMMEs include financial support that was rated the highest, followed by high transport costs. Mutezo (2013:153) highlights that owing to inability to access finance, SMEs are unable to develop into sustainable businesses in the long run. The study conducted by Cant and Wiid (2013) in the Tshwane SMMEs found that inflation rate, high interest rates, crime, unemployment, and location of the business are major problems that can lead to failure. Ngcobo and Sukdeo (2015) in their study conducted in eThekwini region in Kwazulu-Natal also found that access to finance is a challenge to SMMEs as rated by 73% of the respondents. The next subsection discusses the challenges of SMEs specifically in the commercial banks.

2.5.2 Challenges of SMMEs in the formal banking sector

SMMEs in developing countries are unable to access financial products and services owing to lack of credit history, financial statements and inappropriate collateral (IFC, 2013:09). Moreover, women entrepreneurs were mostly affected by the lack of access to finance (IFC, 2013:33). Evidence indicates that SMMEs continue to be undersupplied with the financial products and services that are crucial to their growth.

SMMEs also have important operational needs that banks can meet with non-lending products that include deposits and savings, transactional products, and advisory services (IFC,

2010:16). Technology developments such as internet banking, electronic clearing, and document management have increased the appeal of transacting banking products to SMMEs while lowering costs for banks (IFC, 2010:35). Banks must offer a range of products, beyond lending because loans are often not the major drivers of SMME banking profitability (IFC, 2010:59).

2.5.3 Profile of SMMEs in South Africa

The dominant sector in the SMME market in South Africa is trade (wholesale and retail) and accommodation sector; accounting for approximately R944500 in a total of R2.2 million (SEDA, 2016:19). Most of the informal SMMEs operate in the trade and accommodation sector owing to low initial a layout and ease of entry (SEDA, 2016:19). Out of SMMEs in the formal sector, half of them are employers and the other half are own account workers. Moreover, those in the informal sector, the majority are own account workers. According to SEDA (2016:24), the majority of SMMEs owners have some secondary education (60%), and those with tertiary education account for 19%, while 4% have no schooling. The survey conducted by GEM in 2006 also indicates that the highest percentage (45.1%) of SMME owners has secondary education (Department of Trade and Industry, 2008:80). The following section discusses City of Tshwane Metropolitan Municipality.

2.5.4 City of Tshwane Metropolitan Municipality

City of Tshwane Metropolitan Municipality (CTMM) is one of the municipalities in the Gauteng Province. CTMM is one of the six largest municipalities in South Africa and the second largest municipality in Gauteng Province (Stats SA, not dated). CTMM was established on 05 December 2000, previously known as the greater Pretoria (City of Tshwane, not dated).

The main sectors in the Municipality's area are community service followed by finance and manufacturing (Stats SA, not dated). Pretoria city currently known as Tshwane is the central part of the CTMM (Stats SA, not dated). It is the administrative capital of South Africa and houses the Union Buildings (Stats SA, not dated). The characteristics of CTMM are discussed in the paragraph below.

The city houses all national government departments as well as foreign embassies. According to Stats SA (not dated), CTMM contributes approximately 26.8% to the Gauteng Province GDP and approximately 9.4% GDP of the national economy (City of Tshwane Annual Report, 2013/2014:24). CTMM is a national centre of research and learning with four universities and

seven of the eight national science councils. It has a well-established manufacturing sector, with the automotive industry representing the most significant component; and also all major banks and financial institutions have offices in Tshwane. The City also has the characteristics of a smart city (City of Tshwane, not dated). From the above discussion about the characteristics of CTMM, it is clear that there is support for SMMEs and opportunities for business growth (locally and internationally). The next subsection discusses the benefits of e-banking to SMMEs; one of the drivers that stimulate SMMEs growth, by giving SMMEs a platform to enter international markets and its effectiveness and efficiency on financial activities.

2.5.5 Benefits of e-banking to SMMEs

According to Shahnoori and Jenkins (2015:02), online banking offers numerous advantages for SMMEs through lower cost, which includes information inquiries, money transfers, periodic payments, and foreign exchange transactions (buying and selling). This is supported by the study conducted by Rahayu and Rahadian (2015) on Cibaduyutu SMMEs shoes industry in Indonesia. The managers of SMMEs Cibaduyutu reported that transaction costs could be reduced by using mobile banking (Rahayu & Rahadian, 2015). Riyadh, Akter and Islam (2009) as cited by Shahnoori and Jenkins (2015:02), assert that the significant benefit of e-banking is that financial managers or owners of SMMEs have control over their accounts. Moreover, Williams (1999) as cited by Al-Fahim (2016:04) point out that internet technologies can increase the ability of a small company to compete with other companies both, locally and internationally; create the possibility and opportunities for more diverse people to start a business; and offer appropriate and easy ways of doing business transactions (not restricted to certain hours of operation). Having discussed the benefits of e-banking to SMMEs, it is also important to discuss its challenges to SMMEs to give the two sides of e-banking. The next subsection discusses the challenges e-banking to SMMEs.

2.5.6 Challenges of e-banking to SMMEs

SMMEs find it challenging to adopt new technology owing to lack of knowledge of the new technology, its potential and other important characteristics (Dilver, 2015:130). Furthermore, failure to understand what a new technology offers may lead to loss of opportunities such as improved productivity and growth of a business (Dilver, 2015:130). The study conducted by Chavan (2013:23) in India shows that there is no commercial bank in India, which has exclusively specialised in the small business segment. The researcher elucidates that the SMMEs in India have general problems like the inability to provide quality data, to exhibit

formal systems and practices and the lack of asset cover. Legal and regulatory compliance has also been inadequate in India. Kumar (2001) cited in Chavan (2013:23) also indicates that there are many challenges involved in a web-based relationship model for SMMEs with India given the current state of regulation. However, in South Africa, there is no data available in the public domain indicating how many SMMEs are using e-banking. Therefore, it is crucial for banks to understand the factors that influence adoption of e-banking, level of usage and barriers to usage and adoption by SMMEs in the CTMM. The next section discusses the theoretical frameworks that were used to determine the factors that influence or hinder the adoption of e-banking.

2.6 THEORETICAL FRAMEWORK

Several theoretical frameworks can be used to investigate individual's perspectives for technology adoption. Theoretical frameworks, which are widely used by researchers include the Diffusion of Innovation (DOI); Technology Acceptance Model (TAM); Theory of Reasoned Action (TRA); Perceived Risk Theory (PRT) and Theory of Planned Behaviour (TPB). Rogers conceptualised the DOI theory in 1962; Poters developed TAM; Fishbein and Ajzen developed TRA in 1975; Bauer developed PRT in 1960; and Ajzen developed TBP in 1985.

According to Hanafizadeh and Khedmatgozar (2012:154), the radical change in technology in the banking industry has led to a change in distribution channels. The researchers highlight that the change in service channels led to a new literature in research in the field of banking technology. Akinci, Aksoy, and Atilgan (2004) cited in Hanafizadeh and Khedmatgozar (2012:154) identified four interrelated research areas influencing the field of internet banking as the following:

- Retail banking services offered within the internet banking framework.
- Structure of bank distribution channels.
- Banks and banks managers' perspectives, attitude, orientation and strategies toward internet banking.
- Customer characteristics including demographical characteristics, attitudes, intentions, adoption, and satisfaction.

According to Hanafizadeh, Keating and Khedmatgozar (2014:03), the systematic review of the e-banking literature reveals the following three main groups of papers: descriptive, relational and comparative. Descriptive studies' objective is to identify characteristics, attitudes,

reactions, adoption barriers, and features making internet banking adoption appear to be attractive to the customers (Hanafizadeh & Khedmatgozar, 2012:154). These studies depend on primary and secondary evidence to describe the nature of internet banking and do not seek to explain the relationships between the different factors influencing adoption (Hanafizadeh et al., 2014:04). Relational studies "seek to understand how the different factors that affect internet banking adoption interact in their influence on adoption" (Hanafizadeh *et al*., 2014:04). Comparative studies investigate internet-banking adoption by focusing on comparisons among key variables (Hanafizadeh *et al*., 2014:06). These studies use models and theories or a combination of models to detect those variables (Hanafizadeh & Khedmatgozar, 2012:154). The theories that are mostly used in the relational studies conducted in the field of adoption of new technologies like internet banking include: TRA, DOI, TPB, SCT, TAM, CTT and PRT (Hanafizadeh & Khedmatgozar, 2012:154). Internet banking literature is depicted below. Internet banking literature.

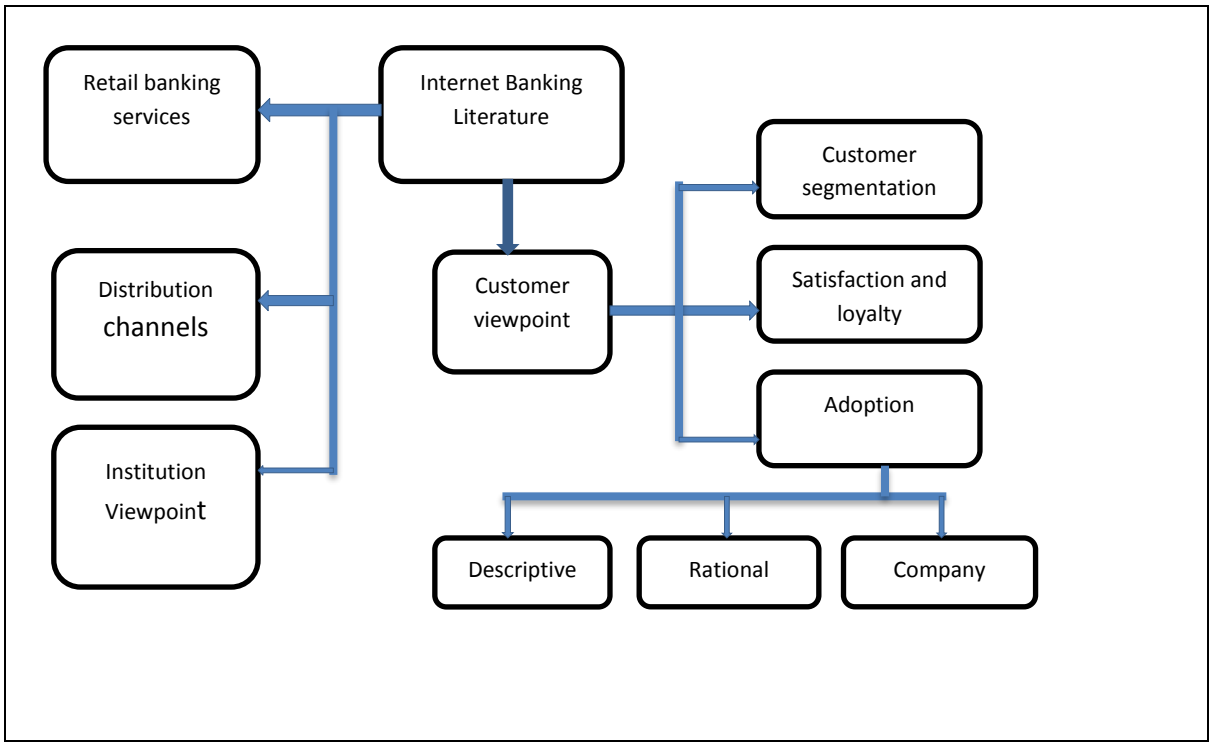

Figure 2.4: Internet banking literature

Source: Hanafidazeh et al. (2013:03)

The above-mentioned theories are discussed in the next subsection.

2.6.1 Diffusion of Innovation theory

The DoI theory has been widely used by researchers across the world to predict the factors that influence adoption of new technologies. Rogers introduced DoI in 1962 (Apanasevic, Markendahl & Arvidsson, 2016:39). Rogers (1983:05) defines diffusion as "the process by which an innovation is communicated through certain channels over time among the members of social system". According to Rogers, diffusion is a special form of communication, in that the messages are concerned with new ideas. Rogers (1983:11) further defines innovation as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption".

The DoI theory predicts that adoption of innovation is influenced by characteristics such as relative advantage, compatibility, complexity, trialability, and observability (Giordani, Floros & Judge, 2014:39). Relative advantage is defined as "the degree to which an innovation is perceived as being better than the idea it supersedes" (Kapoor, Dwivedi & Williams, 2015:1041). Compatibility is defined as the degree to which an innovation is perceived as consistent with individual's existing values, past experiences, and needs of potential adopters" (Takieddine & Sun, 2015:363). Complexity refers to the degree to which an innovation is observed as quite difficult to understand and use (Kapoor et al., 2015:1041). Trialability is the degree to which an innovation is perceived trialable before adoption (Takieddine & Sun, 2015:363). However, if consumers do not have access to the internet, then internet banking is not trialable (Takieddine & Sun, 2015:363). Finally, observability is the degree to which the results of an innovation are visible to others (Kapoor *et al*., 2015:1041). The DoI model is mainly used to predict factors that influence adoption of new innovation in all fields. The next subsection discusses the TRA model.

2.6.2 Theory of Reasoned Action

Fishbein and Ajzen (1975) developed the Theory of Reasoned Action (TRA) depicted in Figure 2.5. Mishra, Akman and Mishra (2014:30) assert that the TRA provides an important fundamental conceptual model for examining human behaviour. Moreover, a person's intention to perform or not perform plays the most significant role in determining whether the person will eventually engage in that behaviour or not (Kuo, Rolda-Bau & Lowinger 2015:181). TRA postulates that individuals' intentions are shaped by two crucial factors namely "attitudes" toward the given behaviour and perceptions of "subjective norms" (Kuo *et al*., 2015:181). Attitude towards behaviour represents an evaluation of an object or event that is apprehended in various attribute extents such as good-bad, harmful-beneficial, or pleasant or unpleasant (Teo & Van Schaik, 2012:179). According to Kuo *et al*. (2015:181), subjective norms refer to

social pressure or expectation to either engage or not engage in the target behaviour. Mishra *et al*. (2014:30) emphasise that the aim of TRA is to investigate the relationship between attitude and behaviour based on two major concepts, namely, principles of compatibility and behavioural intention. The researchers further highlight that TRA is a predictive model that is used in a diversity of fields such as banking, public, education, and information technology to predict individual's actions based on certain principles. TRA model is depicted in Figure 2.5.

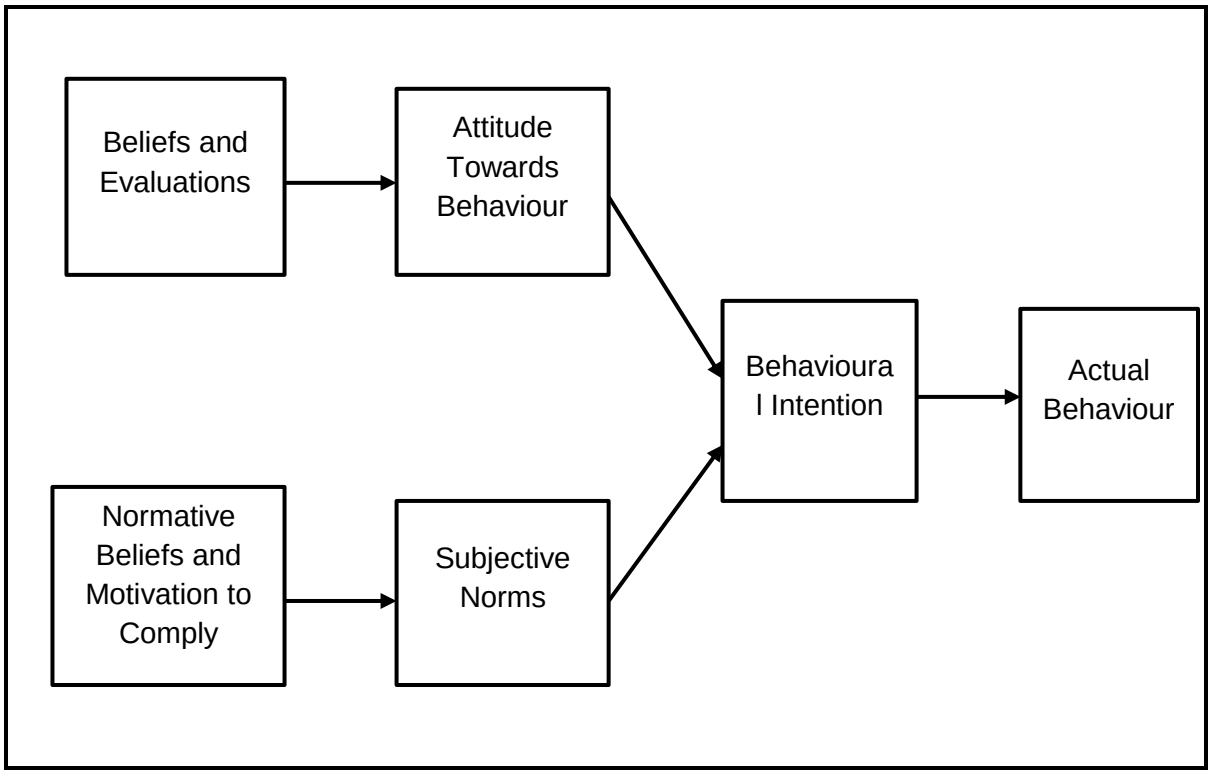

Figure 2.5: Theory of Reason Action

Source: Fishbein and Ajzen (1975): Source: Malhotra and Galletta (1999)

The next subsection discusses TPB model for predicting an adoption of a new technology.

2.6.3 Theory of Planned Behaviour (TPB)

Ajzen developed the TPB in 1985 as an extension of the TRA developed by Fishbein and Davis in 1975. Furthermore, this model is related to voluntary behaviour (Safeena, Kammani & Date, 2014:839). TPB was extended by adding perceived behavioural control. The TPB proposes that a central factor in human behaviour is behavioural intention, which is affected by attitudes to behaviour, subjective norms, and perceived behavioural control (Ajzen, 1985; 1991; 2002 as cited in Lin, Wu and Tran, 2015:272). Ajzen (2002) cited in Al-Sahouly, Rashid and Salford (2015: 401) defines perceived behavioural control as "people's perceptions of their ability to adopt a given behaviour". Al-Sahouly *et al*. (2015:400) further clarify that perceived behavioural control is the perception about how easy or difficult it is to perform the suggested

behaviour. The researchers argue that perceived behavioural control was added to address the situations in which an individual lacks the control or resources essential for carrying out the targeted behaviour easily. The next section discusses the TOE model; another model for determining adoption of new technology.

2.6.4 Technology-Organisation-Environment (TOE) theory

Tornatzky and Fleischer introduced TOE model in 1990 (Chatzoglou & Chatzoudes, 2016:328). This model posits that a company's decision to introduce a new technology is affected by technological, organisational and environmental factors (Chatzoglou & Chatzoudes, 2016:328). Zhou *et al* (2003) cited in Chatzoglou and Chatzoudes (2016:334) suggest that technological context is influenced by IT infrastructure and internet skills. Other researchers used relative advantage, perceived ease of use, compatibility, risk propensity, and perceived credibility (Gareeb & Naicker, 2015; Li *et al*., 2011; Chen, Windasari & Pai, 2013). According to Gareeb and Naicker (2015:06), technological context concentrates on perceived direct and indirect benefits of technology.

Organisational context relates to company characteristics to management and their structure, global scope, enterprise integration, availability of human resource for technology use, perceived benefits, and financial resource and funds availability (Gareeb & Naicker, 2015:07). Other studies (Chatzoglou & Chatzoudes, 2016; Awa & Ukoha, 2012) have used firm size, firm scope, CEO knowledge, adoption cost, and facilitating conditions to measure organisational context.

Finally, environmental context also referred to as external factors, measures the adoption of technology based on competitive pressure, government pressure, and market uncertainty (Gareeb & Naicker, 2015:07). The next subsection discusses TAM model. The study adopted this model to predict factors that influence adoption and usage of e-banking among SMMEs in the CTMM.

2.6.5 Technology Acceptance Model (TAM)

Davis proposed technology Acceptance Model (TAM) in 1989, deriving it from TRA developed by Fishbein and Ajzen (1975). According to Lin *et al*. (2015:270), the adaption of TAM was mainly designed to model the user acceptance of information technology. More importantly, this model was proposed to clarify and forecast the acceptance and use of new information technology within organisations (Nasri, 2011:145). Therefore, TAM was designed specifically

to predict behavioural intention to use and the actual use related to information technology only, unlike TRA and DoI that can be used to examine human behaviour in various disciplines. TAM has recently also been used to predict internet adoption Lin *et al*. (2015:270). Researchers have used this model extensively and it was verified empirically. This model suggests that adoption and use of new technology is influenced by perceived usefulness and perceived ease of use (Nasri, 2011:145). According to Lin *et al*. (2015:270), an attitude is hypothesised to determine the behavioural intention to use technology; behavioural intentions actual usage. Other researchers also extended this model by incorporating it with PRT, especially in the context of internet and cell phone banking (Nasri et al., 2015; Nasri, 2011; Nasri & Charfeddine, 2012; Kesharwani & Singh Bisht, 2012). The TAM model is depicted in Figure 2.6 below.

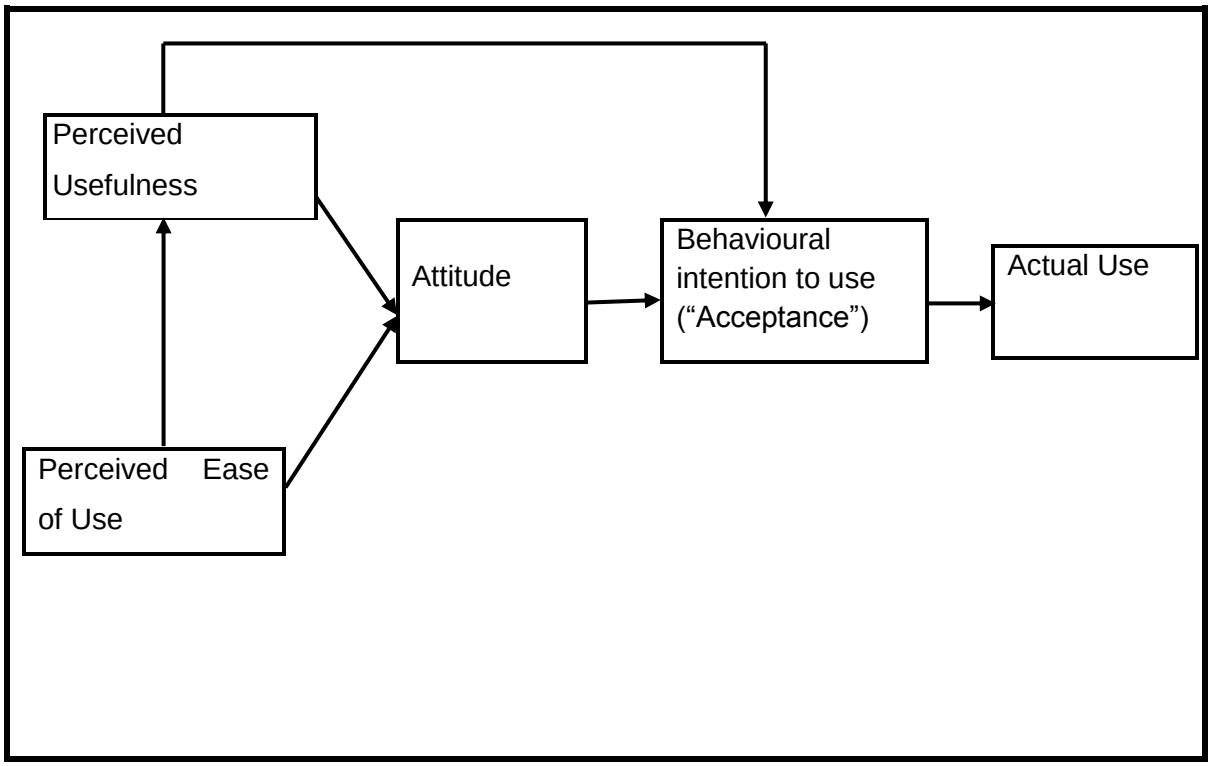

Figure 2.6: Technology Acceptance Model

Source: Holden and Karsh (2010:161).

Perceived usefulness and ease of use are discussed in the following paragraphs.

Perceived Usefulness

According to Davis (1989) cited in Talukder, Quazi and Sathye (2014:86), perceived usefulness refers to the degree to which an individual feel that his/her performance will improve because of using a particular system. The researchers further explain that usefulness

is the total value a user perceives from using an innovation. According to Rawashdeh (2015) and Talukder *et al*. (2014), the perceived usefulness construct has been identified as one of the solidest predictor of new technological innovation usage. Previous empirical research found that perceived usefulness has a significant positive influence on the attitude and intention of the users to adopt e-banking; and is also associated with the system usage (Kesharwani & Singh Bisht, 2012; Lin *et al*, 2015; Talukter *et al*., 2014; Rawashdeh, 2015; & Mazhar, Fiaz, Ishrat, Razzaq & Khan, 2014; Al-Jabri, 2015). In contrary to the latter studies, Al-Jabri (2015) found that perceived usefulness has no significant effect on intention to use mobile banking mainly because most of the sample respondents (67%) never used mobile banking at all. It was difficult for them to assess mobile banking. The next paragraph discusses perceived ease of use.

Perceived ease of use

Davis (1989) cited in Talukter *et al* (2014:86) defines ease of use as the degree to which users expect the innovation to be free of effort. Several researchers found that perceived ease of use has a positive significant influence on e-banking (Hassanuddin, Abdullah, Mansor & Hassan, 2012; Aj-Rfou 2013; Lin *et al*., 2015; Rawashdeh, 2015; Kesharwani & Singh Bisht, 2012). On the contrary, Mazhar *et al*., (2014) found that the perceived ease of use has no direct significant effect on behavioural attitude and intention, but it was found that it exerts significant effect on perceived usefulness. Hence, it has indirect effects on attitude and intention towards e-banking. Given theories that are used to determine factors that influence behavioural intention to use and actual usage, it is also crucial to discuss theories that are used to determine factors that impede the intention to use and actual usage of e-banking. The next subsection discusses PRT, the model that is used to predict factors that impede adoption of a new technology.

2.6.6 Perceived Risk Theory (PRT)

Bauer developed perceived risk theory in 1960 (Cheng, Liu & Wu, 2013:S1-19). Bauer (1960) cited in Kesharwani and Singh Bisht (2012:307) defines perceived risk in terms of the uncertainty and unfavourable outcomes related to consumer's expectation. In the context of online payment, e-banking is defined as the potential for loss in the pursuit of a desired outcome of using an e-service (Yang, Pang, Liu, Yen & Tarn, 2015:11). Cox (1967) cited in Cheng *et al*. (2013:19), proposes that consumers' buying perception is related to financial and social-psychological factors. In 1968, Woodside considered social, functional and economic dimension as measures of perceived risk (Cheng *et al*., 2013:19). In addition, Roselius (1971)

accentuates that consumers might suffer time loss, hazard loss, ego loss, and money loss. Furthermore, Cheng *et al*. (2013) explain that in addition to those dimensions, Jacoby and Kaplan (1972) added financial risk and physical risk, and proposed five types of perceived risks, namely, financial risk, functional risk, physical risk, psychological risk, and social risk. However, Palvou (2003) and Littler and Melanthiou (2006) cited in Chen (2013:415) predicted that six dimensions in the setting of retail banking services form perceived risk. They include financial, performance, time, social, security, and privacy risk. These dimensions are discussed in the next paragraph.

Performance risk refers to failure to deliver the benefits owing to the possibility of the results not being as they were designed to be (Martins, Oliveira and Popovič, 2014:05). *Financial risk* refers to consumer perception about the potential monetary loss caused by the usage of online banking (Yang, Liu, Li & Yu, 2015:256). *Time risk* refers to loss of time by making poor purchasing decisions, with researching and making the purchase, and learning how to use it (Martins *et al*., 2014:05). *Psychological risk* refers to consumer's perception of any potential psychological frustration, pressure, or anxiety resulting from the use of online payment (Yang *et al*., 2015:257). *Social risk* reflects the possible loss of status in a social group, as a consequence of adopting a product or service (Martins et al., 2014:05). *Privacy risk* is the probability that online businesses might use personal information inappropriately hence invading a consumer's privacy (Thakur & Srivastava, 2015:153). PRT is also used widely in the studies of e-banking as online e-banking include risks, which are barriers to adoption. Those risks are vital in determining the factors that influence or impede the adoption and usage of e-banking. The next paragraph discusses PRT's variable that is mostly used, specifically for internet banking studies.

Perceived risk on e-banking

Perceived risk in terms of e-banking is defined as the probability or the possibility that the user might incur the losses in the form of financial losses or personal account information by using mobile or internet banking (Al-Jabri, 2015:26). Perceived risk was found to be a key hindrance to the adoption and usage of e-banking based on individual perspective (Tan & Teo, 2000; Nasri, 2011; & Nasir *et al*., 2015). Previous empirical research found that perceived risk has a significant effect on internet banking (Tan & Teo, 2000; Nasri, 2011; Ong & Lin, 2015; Kesharwani & Singh Bisht, 2012). The researchers found that perceived risk is negatively related to the adoption and usage of e-banking. Most researchers (Lee, 2009; Hanafizadeh & Khedmatgozar, 2012; Nasir *et al*. 2015; Nasri, 2011) used the following dimensions to measure perceived risk with regard to adoption and usage of online banking:

Security risk is defined “as a potential loss owing to fraud or hacker compromising the security of an online banking user” (Hanafizadeh & Khedmatgozar, 2012:156). On the contrary, Flavian, Guinaliu and Torres (2006) as cited in Nasri and Zarai (2014:1815) defined it “as users; perception of protection against security threats and control of their personal data information in an online environment”. This is the most utilised dimension of risk used by many researchers (Lee, 2009; Nasri & Charfeddine, 2012; Nasri & Zarai, 2014). The study conducted by Al-Rfou (2013) in Jordan found that security and privacy is the main predictor of internet banking usage. According to Kesharwani and Singh Bisht (2012:305), the rapid increase in internet-based services besides attracting the banking sector has also prompted a number of deceptive and fraudulent practices over internet. Kesharwani and Singh Bisht (2012:304) maintain that online services are operating in an open environment, their application and outcomes are vulnerable to security and privacy threats such as phishing activities, malware, spywares, spoofing, and password sniffing. Consumer’s attitude concerning the security of e-banking is associated with their use of this technology. Therefore, the adoption and usage of e-banking is inhibited by security concerns and the likelihood of hackers accessing consumer’s accounts distantly (Chen, 2013:415). The next paragraph discusses privacy risk.

Privacy risk refers to the concerns about personal and private information being revealed owing to unauthorised access to this information by third parties and the belief that banks make use of private information about their clients without their consent (Nasir et al., 2015:464). Customers are concerned about their private information being invaded owing to hacking and fraudulent activities that take place during their interaction with e-banking (Nasir *et al*., 2015:464). Therefore, privacy issues associated with e-banking have made major obstacles to the adoption of e-banking (Nasir *et al*., 2015:464). The next paragraph discusses financial risk.

Financial risk refers to the potential monetary loss resulting from misuse of bank account or transaction error (Nasir et al., 2015:464). According to Nasri *et al.* (2015:464), online banking transactions lack assurance offered in traditional banking through formal records and receipt. As a result, customers may find it difficult to claim in cases where transaction errors occur. Previous empirical research found that perceived risk has a negative effect on adoption and usage of online banking (Tan & Teo, 2000; Nasri, 2011; Kesharwani & Singh Bisht, 2012; Chen 2013; Martins *et al*., 2014; Ong & Lin, 2015; Lee, 2009). The next paragraph discusses performance risk.

Performance risk refers to the concerns about deficiencies or malfunctions that may lead to monetary loss (Nasir *et al*., 2015:464). Mattila, Karjaluoto and Pento (2003) as in Nasri *et al.* (2015:464) claim that users of internet banking are always frightened about the probability that the system may collapse while conducting their online transactions, as these commonly lead to unforeseen losses in their bank accounts. Furthermore, Nasri *et al.* (2015:464) elucidate that perceived performance risk is closely related to customers' trust in the bank's technical capability and maintenance. In other words, the adoption and usage of e-banking depend on the effectiveness of the bank's e-banking systems. Previous empirical research on internet banking has found that perceived risk has a negative effect on adoption and usage of online banking (Tan & Teo, 2000; Nasri, 2011; Kesharwani & Singh Bisht, 2012; Chen 2013; Martins *et al*., 2014; Ong & Lin, 2015; Lee, 2009). Finally, the next paragraph discusses social risk.

Social risk refers to the possibility that using online banking may result in disapproval of a person's family, friends and colleagues Nasri *et al*. (2015:465). Previous empirical research found that perceived risk has a negative effect on adoption and usage of online banking (Tan and Teo, 2000; Nasri, 2011; Kesharwani & Singh Bisht, 2012; Chen 2013; Martins *et al*., 2014; Ong & Lin, 2015; Lee, 2009). The next section discusses demographic factors as they also play critical role in the adoption of new technology.

2.6.7 Demographic Factors

Other factors contribute to the adoption and usage of e-banking. According to Giordina *et al*. (2014:588), the adoption of e-banking depends on various characteristics of customers adopting this technology. Chong (2013:1353) highlights that most studies on the adoption of technology are derived from TAM and DOI model and ignored to investigate the effect of demographic factors. Demographic factors include age, gender, education, and income. These demographic factors are discussed below.

Gender is observed as a crucial determinant of technology adoption. Saffena *et al.* (2014:841) point out that gender is a vital determinant of short-term usage and can be utilised to forecast constant usage behaviour in individual technology adoption. Previous studies report that male customers are more likely to adopt e-banking than female customers (Gordina *et al.*, 2014; Laukkanen, 2016). Giordina *et al*. (2014:588) justify that males are exposed to technology and are more likely to explore new banking technologies. Hence, males are the most adopters of new technologies. Educational level is discussed in the next paragraph.

Second characteristic is the *level of education*. According to Nasri (2011:146), educated people may have computer and good information processing skills. The researcher further emphasises that those skills are important in the context of internet banking; hence the relationship between education and adoption promoted. The next paragraph discusses age.

The *customer's age* also plays a significant role in influencing the adoption and usage of e-banking. Unsurprisingly, previous studies report that younger customers are the most adopters and users of e-banking (Gordina *et al.* 2014; & Laukkanen, 2016). Liebermann and Stashevsky (2002) cited in Chong (2013:1352) found that older people are likely to perceive higher risks in using the internet when compared to younger people. According to Gordina *et al.* (2014:588), younger customers are more acquainted with new technologies and are less risk averse than senior customers. The next subsection discusses empirical studies that were conducted on the adoption of new technology amongst SMMEs.

2.6.8 Empirical Studies

The empirical studies conducted on the adoption of e-banking on an individual perspective has supported Davis' (1989) model. The studies supported TAM in that perceived usefulness and perceived ease of use were found to have a positive significant effect on attitude and intention to adopt e-banking (Lee, 2009; Nasri & Charfeddine, 2012; Nasir *et al*., 2015). However, perceived usefulness has the most powerful influence than perceived ease of use (Nasri & Charfeddine, 2012; Nasir *et al*., 2015). These studies also indicate that perceived ease of use has a significant positive influence on perceived usefulness (Lee, 2009; Kesharwani & Bisht, 2012; Nasri & Charfeddine, 2012; Nasir *et al*., 2015). Perceived usefulness was again found to have a direct significant positive influence on intention to adopt e-banking whereas perceived ease of use indirectly influences intention to adopt e-banking through perceived usefulness and attitude towards e-banking (Lee, 2009; Nasri & Charfeddine, 2012; Nasir *et al*., 2015). All perceived risk dimensions (privacy, security, performance, financial and time) except social risk were found to have a statistically significant negative influence on intention to adopt internet banking (Lee, 2009; Hanafizadeh & Khedmatgozar, 2012; Nasir *et al*., 2015). However, security risk emerged as the most important predictor to the adoption on internet banking (Lee, 2009; Nasir *et al.*, 2015). The following paragraph discusses studies conducted on new technology adoption among SMMEs.

The empirical studies conducted on the adoption of new technology among SMMEs has supported Davis' (1989) model. The studies found that perceived usefulness has a positive

impact for both initial adoption and continued use of new technology (Grandon & Pearson, 2004:209; Grandon & Pearson, 2004:94; Saffu, Walker & Hinson, 2008:402). Moreover, these studies also found perceived usefulness to be the strongest predictor for adoption. Adopters of e-commerce believe that the use of e-commerce enhances managers' effectiveness on job performance (Grandon & Pearson, 2004:94). Perceived ease of use was found to have a significant and positive relationship to perceived usefulness for both adopters and non-adopters (Li *et al*., 2011:16; Caniëls, Lanerts & Gelderman, 2015:367; Gupta, 2013:867; Grandon & Pearson, 2004:209). However, perceived ease of use was not found to have a positive relationship to intention to usage (Grandon & Pearson, 2004:94; Li et al, 2011:16). Caniëls *et al*. (2015:368) argue that once people are accustomed with new technology and have learnt how to use it effectively, the direct effect on behavioural intention to use fades. Therefore, it was found that perceived ease of use indirectly affects intention to usage through perceived usefulness. This finding is contrary to the study of Saffu, *et al.* (2008:402) which found perceived ease of use to be influential in e-commerce adoption decision of Ghananian SMME owners or managers. According to Saffu *et al*. (2008:402), this disparity is explained by the period of time that SMME owners or managers have been exposed to e-commerce as the development in Ghana was slow compared to other developing countries. Table 2.3 below is the summary of empirical studies that were discussed above. This table was adapted from Awiagah, Kang and Lim (2015:06).

Table 2.3: New technology adoption factors for SMMEs

Subject	Constructs	Level of analysis	Literature
E-commerce adoption	Behavioural norms, extrinsic motivation (perceived usefulness), intention to use internet, intrinsic motivation, market orientation, perceived ease of use, internet usage	Belgian SMEs	Caniëls *et al*. (2015)
Online direct sales channels among adoption	Perceived ease of use, perceived relative advantage, perceived competitive pressure, internet expertise, resource slack, and risk propensity.	United States SMEs	Li *et al*. (2011)
E-commerce adoption	Organisational support, managerial productivity, strategic decision aids, perception of strategic value, adoption, perceived ease of use, perceived usefulness, external pressure and organizational readiness	Ghana SMEs	Saffu *et al*. (2008)
E-commerce adoption	Perceived ease of use, perceived usefulness, compatibility, external pressure and organizational readiness	United States SMEs	Grandon and Pearson (2004)
E-commerce adoption	Organisational readiness, compatibility, managerial productivity, external pressure, decision aids, perceived usefulness, organizational support, perceived ease of use and strategic decision aids	Chile SME	Grandon and Pearson (2004)
E-banking	Promotion, technology and service quality	Malaysian SMEs	Mansor, Shariff and Manap (2012)

Source: Adapted from Awiagah, Kang and Lim (2015:06)

The next paragraph discusses the risk factor as an obstacle in the adoption of new technology among SMMEs.

Perceived risks were found to have direct negative relationship to intention to adopt (Li *et al*., 2011:16). However, its effect on actual usage is indirect, mediated by perceived usefulness. The reason is that at the SMMEs' initial adoption, there are many aspects of the innovation, which are still unclear to the organisation, there is uncertainty and risks are high. The paragraph below discussed demographic factors on adoption of e-commerce.

Other empirical studies have factored demographic variables as e-commerce adoption drivers. In these studies, age was found to have a significant positive relationship with e-commerce adoption (Awa, Baridam & Nwibere, 2015:338; Ghobakhloo, Arias-Aranda & Benitez-Amado, 2011:1252). When loading location factors against age, Awa *et al*. (2015:338) found that their interactions were statistically significant. This suggests that the relationship between the age bracket of members' top management and adoption of e-commerce is shaped by location factors. The researchers also found executives of less than 40 years to be the main adopters of e-commerce. The experience of executive management in e-commerce was found to be statistically significant, showing top managers with at least five years of experience as critical adopters (Awa *et al*., 2015:338). Gender was found to have a significant positive correlation with e-commerce adoption and that the value for males was statistically significant (ibid). Education was found to have a significant positive correlation coefficient (ibid). The next paragraph discusses risk propensity and obstacles on the adoption e-commerce.

Other studies have used risk propensity to examine the adoption of new technology among SMMEs. Risk propensity refers to the probability of the occurrence of an undesirable event and the magnitude associated with the event (Li *et al*. 2011:08). Managers risk propensity was found to be significantly correlated with initial adoption of new technology (Li *et al*., 2011:16; Wang & Chueng, 2004:57). However, its effect on actual usage is indirect, mediated by perceived usefulness. The reason is that at the SMMEs' initial adoption, there are many aspects of the innovation that are still unclear to the organisation, there is uncertainty and risks are high.

The study of Wang and Chueng (2004:58) has also found technology uncertainty as one of the two major obstacles for SMMEs to enter into mobile transactions. During the interviews, the CEOs of small and large firms raised concerns about the limitations of display, storage and processing capacity of mobile devices (Wang & Chueng, 2004:58). The CEOs had also

reported that the fast pace of technology advances imposes risk on investing on the currently available technologies. The study of Mbatha (2013:18) conducted on SMMEs' tourism supports the findings of Wang and Chueng (2004) where respondents indicated lack of trust and security as obstacles to adoption. In the study of Mwangi and Brown (2015:239) conducted in Kenya on mobile banking services, SMMEs' owners and managers in Kenya were quick to point out that they prefer a banker's cheque for large amounts of money because of security issues. The next paragraph identifies a literature gap.

The empirical studies conducted focuses on e-commerce, information system and cloud computing. Limited research was conducted on e-banking adoption among SMMEs. Most of the studies had used TOE model as their measure and neglected PRT. The focus of these studies was based on factors that positively influence technology adoption only. The factors that hinder technology adoption were not considered. In addition, the studies focused on e-commerce and information system. It is clear from the empirical studies discussed above that studies on adoption of e-banking among SMMEs are limited. The following subsection discusses conceptual framework.

2.6.9 Conceptualised Framework

This study adopted TAM, integrated it with PRT, demographic information and level of usage were used to determine the adoption and usage of e-banking among SMMEs in the CTMM. TAM was selected because it was mainly developed to address technology acceptance issues as DoI, TRA and TPB are applicable to all subject areas. Perceived usefulness and perceived ease of use were used to determine the factors that motivates adoption and usage of e-banking.

PRT was also selected because of the risks related to the new technology. According to Waite and Harrison (2015:259), risk is the first aspect that comes into the customers' mind before they can adopt it. Waite and Harrison (2015:259) point out that before use there is uncertainty over the degree of relative advantage, compatibility, and complexity, and therefore any decision to adopt an innovation involves a degree of risk. Perceived risk variables extracted from PRT include security risk, privacy risk, social risk, financial risk and performance risk.

Demographic information used in this study include age, gender and educational level. This study was also aimed at investigating the level of usage, which is determined by the length or duration of e-banking usage, and e-banking transactions that are performed by SMMEs. In addition, this study aimed at identifying challenges that are experienced by SMMEs when

using e-banking. In this study, TAM has been used as a foundation model for this study as it is used to anticipate users' acceptance of technology. The theoretical framework underpinning this study is depicted below in Figure 2.7.

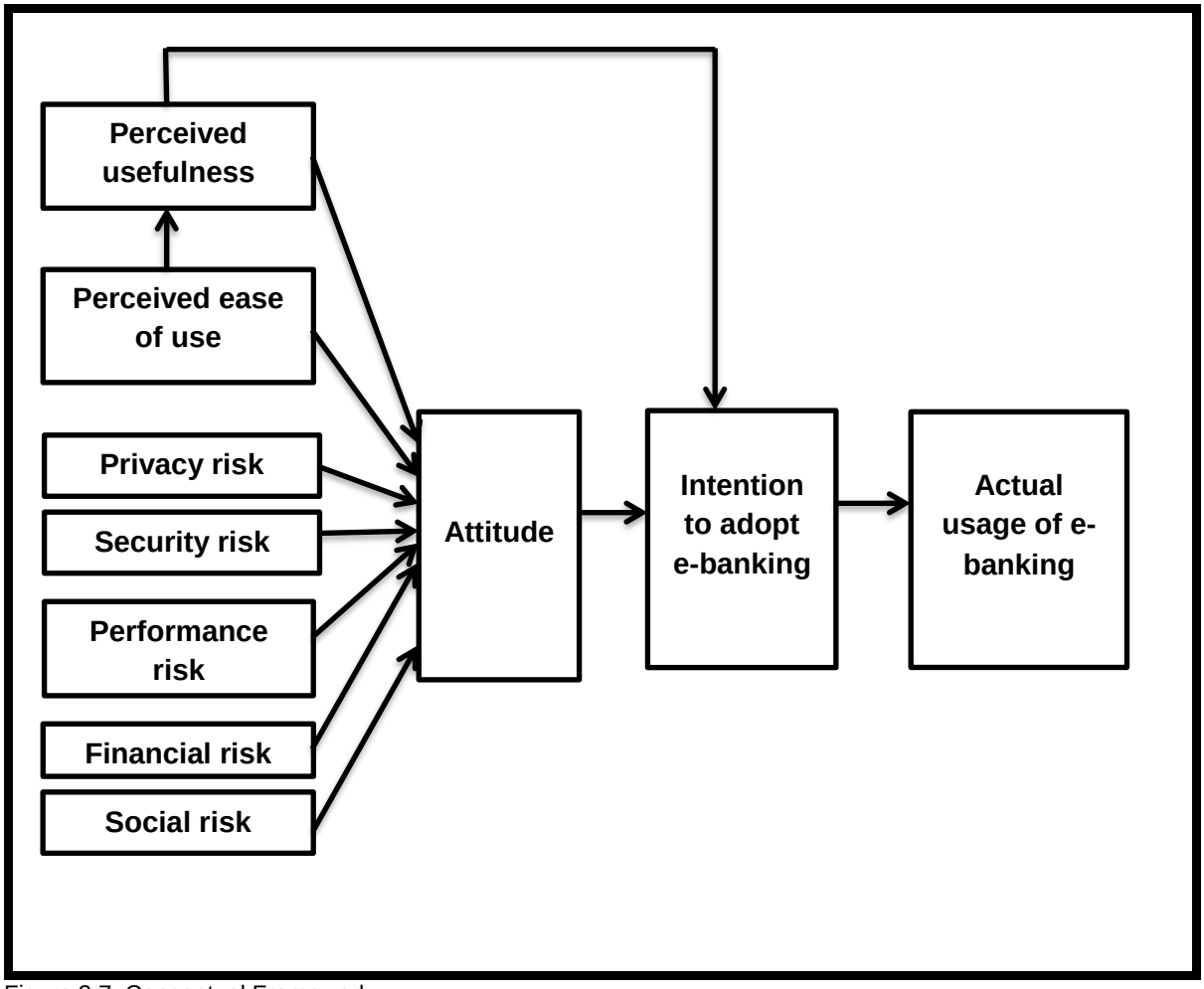

Figure 2.7: Conceptual Framework
Adapted from Nasir et al., 2015:464

2.7 CONCLUSION

While technology has brought changes in the way business is executed worldwide, many companies seek for new products that are aligned with new technologies. Institutions like commercial banks have also taken an advantage of internet technologies, by developing e-banking as a way of increasing their productivity by lowering costs. Having noted the importance of e-banking in lowering administrative and transaction costs for commercial banks and its customers, e-banking has become a strategic need for banks worldwide to compete.
Given the importance of SMMEs in the South African economy, the growth of SMMEs is critical. E-banking is a vehicle for SMMEs to grow internationally. For SMMEs to be able to

trade internationally, e-banking is a necessity. Having noted lack of skills, information technology and resources in South African SMMEs, e-banking can also reduce administrative costs and transport costs for SMMEs; and on the other hand increase profitability. It is also noted in this study that SMMEs are not only important to the economy of South Africa, but to commercial banks too as they provide good prospects to them. Having noted the importance of e-banking on SMMEs, it is important to determine the usage and factors that influence and hinder its adoption by commercial banks. The next chapter discusses the methodology employed in this study.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The purpose of this chapter is to give an overview of the research methodology employed in order to achieve the objectives of the study. The aim of this study was to investigate factors that influence and impede the adoption and usage of e-banking among SMMEs in the CTMM. The research onion developed by Saunders, Lewis and Thornhill (2012) guided the methodology in this study depicted in Figure 3.1 below. This chapter starts by explaining the purpose of research design followed by the philosophical assumption, research approach; methodological choice; strategies; time horizon; population and target population; sample and sampling frame; sampling technique; and data collection, research instrument, data analysis and finally ethical considerations.

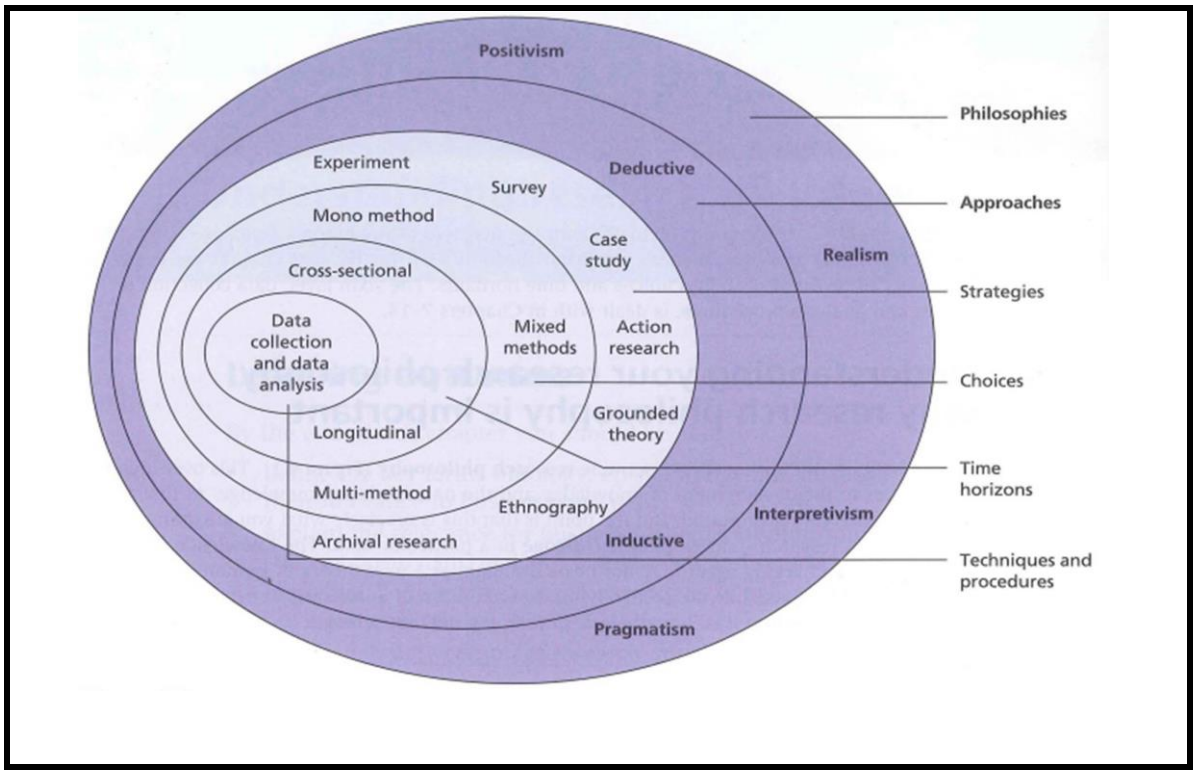

Figure 3.1: Research Onion

Source: Saunders et al. (2012)

3.2 RESEARCH DESIGN

The research design is informed by the research philosophy that the researcher has chosen (Saunders *et al*., 2012:196). Research design provides a framework for the collection and analysis of data (Bryman, 2012:46). Precisely, research design is the general plan of how the researcher will go about answering your research questions (Saunders *et al*., 2012:159). Furthermore, research design contains clear objectives derived from research questions, specifying the sources from which one intend to collect data, propose to collect and analyse data, discuss ethical issues and the constraints you will inevitably encounter (Saunders *et al*., 2012:159).

3.2.1 Research philosophy

The research philosophy is the first step of the research methodology. Research philosophy refers to "the assumption about human knowledge and the nature of realities" (Saunders *et al.*, 2012:129). Accordingly, philosophical assumptions inform methodological choices (Saunders *et al*., 2012:161). There are four types of philosophies, namely:

- *Positivism* - referred to as an epistemological approach that supports applying natural science methods to study and understand social reality (Bryman, Bell, Hirschsohn, Dos Santos, Du Toit, Masenge, Van Aardt & Wagner, 2014:12).
- *Realism* – relates to scientific enquiry in which reality is quite independent of the mind (Saunders *et al*., 2012:136). According to Saunders et al. (2012:136), "the essence of realism is that what we see is reality: that objects have an existence independent of human mind".
- *Interpretivism* – refers to an epistemology that sees humans as social actors; individuals with different qualities of life (Saunders *et al*., 2012:150). Human behaviour is utilised to interpret the world (Bryman, 2012:30). Interpretivists have to adopt empathic attitude (Saunders et al., 2012:137); with the aim of understanding the meaning of the person's behaviour interpretivists try to see things from that person's point of view (Bryman, 2012:30).
- *Pragmatism* – proclaims that concepts are only relevant where they support action (Saunders *et al*., 2012:130). Pragmatists believe that working with different multiple philosophical positions can give the comprehensive picture (Saunders *et al*., 2012:130).

Positivism is deemed appropriate for this study in that theory is tested by specifying narrow hypotheses and the collection of data to support or refute the hypotheses (Cresswell, 2014:19). In positivism, “only phenomena that can be observed will lead to the production of credible data” and that existing theory is being used to develop hypotheses (Saunders *et al*., 2012:134). Likewise, in this study, theory was used to determine the conceptual framework underpinning this study; in order to determine factors that influence the adoption and usage of e-banking among SMMEs. In other words, positivism was used to determine the relationship between theory and research (Saunders *et al*., 2012:162). The next subsection discusses the research approach.

3.2.2 Research approach

There are three main research approaches, namely, deductive, induction and abduction (Saunders *et a*l., 2012:150). With deductive approach, theory and hypothesis or hypotheses are developed and a research strategy is designed to test the hypothesis (Saunders *et al*., 2012:150). In induction approach, data are collected and a theory developed out of the data analysis (Saunders *et al*., 2012:150). Conversely, with abduction approach, data are used to explore a phenomenon, identity themes and explain patterns, to generate a new or modify an existing theory which is subsequently tested, often through additional data collection (Saunders *et al*., 2012:150).

The research approach for the study was deductive. This approach was chosen mainly because data are used to test theory (Saunders *et al*., 2012:162). According to Bryman *et al*., (2014:09), deductive theory represents the most common view of the nature of the relationship between theory and research. The authors further explain that the researcher deduces hypothesis or hypotheses based on what is known about a particular subject area in theory and practice. The next subsection discusses the methodological choice.

3.2.3 Methodological choice

After the identification of research philosophy and approach, the researcher needs to choose which research method or design to use. The researcher has evaluated various methodologies to determine the best method that can be used to answer the objectives of this study. These are quantitative, qualitative and mixed methods research. These research methods are briefly discussed in the paragraphs below:

- Quantitative method is described “as a distinctive research approach that entails the collection of numerical data, regards the relationship between theory and research as deductive, prefers a natural science approach in general (and positivism in particular), and adopts an objectivist conception of social reality” (Bryman *et al*., 2014:31). From the philosophical point of view, quantitative research method is associated with positivism (Saunders *et al*., 2012:162). Data collection technique for this method includes the use of questionnaires (Saunders *et al*., 2012:161). This method is used to investigate the relationship between variables, which are measured numerically and data analysis procedures involve utilisation of various statistical methods. (Saunders *et al*., 2012:162). Saunders *et al*. (2012:164) further explain that this method is guided by a deductive theory, where data are used to test theory.
- Qualitative research method is related with an interpretive philosophy (Saunders *et al.*, 2012:163). It is “an approach for exploring and understanding the meaning individuals or groups ascribe to social or human problems” (Cresswell, 2014:04). It is used to formulate a wealthier theoretical perspective. Unlike quantitative research, qualitative research refers to the gathering and analysis of basically non-numeric data; and data collection is not standardised (Cresswell, 2014:41). Data collection methods include interviews and data analysis procedure involves categorisation of data (Saunders *et al*., 2012:161). Qualitative research honours inductive style (Cresswell, 2014:04).
- Mixed method research uses both quantitative and qualitative research methods within a single project (Bryman *et al*., 2014:62). The combination of these methods gives absolute understanding of a research problem than either approach alone (Cresswell, 2014:04).

Quantitative research was considered suitable for this study. Quantitative researchers are hardly ever concerned only to describe how things are, but are eager to say why things are the way they are (Bryman, 2012:175). In other words, the researchers are not interested in a phenomenon, but are likely to explain it, which means examining its causes (Bryman, 2012:175). Likewise, in this study, the researcher tries to examine the factors that influence adoption and usage of e-banking. TAM variables integrated with the perceived risk theory dimensions were used to determine factors that influence and impede adoption of e-banking because TAM was unable to address all research objectives. Perceived usefulness and perceived ease of use, security risk, privacy risk, performance risk, financial risk, and social risk have been adopted in this study to explain SMMEs’ attitude towards e-banking. Perceived usefulness and attitude were used to determine the SMMEs’ intention to adopt e-banking. The next subsection explains the nature of the research design.

3.2.4 Nature of research design

The research questions and objectives determine the nature of the research design (Saunders *et al*., 2012:170). There are three types of research design, namely:

- Exploratory study - valuable means to ask open questions to discover what is happening and gain insights about a topic of interest (Saunders *et al*., 2012:172).
- Descriptive study - to gain an accurate profile of events, persons, or situations (Saunders *et al*., 2012:172).
- Explanatory study - research establishes causal relationships between variables (Saunders *et a*l., 2012:172).

The current study was deemed explanatory in nature because the research tries to determine the factors that influence the adoption and usage of e-banking by determining the relationship between attitude towards and intention to adopt e-banking. Explanatory studies enable the researcher to investigate a situation or problem with the aim of explaining the relationships between variables (Saunders *et al*., 2012:172). The next subsection discusses the research strategies.

3.2.5 Research strategies and time horizon

Generally, a strategy refers to a plan of action to meet objectives (Saunders et al., 2012:173). The survey strategy was deemed appropriate for this study as it allows the collection of data, which can be analysed quantitatively using descriptive and inferential statistics (Saunders, 2012:177). Survey involves the collection of attitudinal and objective data (Saunders et al., 2012:177). In other words, it is designed to determine the population's behaviour relative to a particular issue (Saunders et al., 2012:177). The next paragraph discusses the time horizon of this study.

Time horizon for this study was cross-sectional as once-off data was collected. Cross-sectional studies refer to the study of a particular phenomenon at a particular time (Saunders *et al*., 2012:190). This kind of study frequently employs survey (Saunders *et al*., 2012:190). The next section discusses sampling employed in this study.

3.3 POPULATION AND SAMPLE SIZE

The aim of this section is to discuss the population and sample size for this study.

3.3.1 Population

Population refers to “the universe of units from which the sample is to be selected” (Bryman, 2012:187). This study targeted SMMEs in the CTMM. According to Stats SA (not dated), CTMM is the second largest municipality in Gauteng Province and it is the administrative capital of South Africa and hosts various foreign embassies. Given the characteristics of CTMM in the literature review presented in chapter two, it is clear that there is support for SMMEs. The subsection below discusses the sample frame of this study.

3.3.2 Sample frame

Sampling frame is a whole list of all the cases in the population from which a sample will be drawn (Saunders et al., 2012:262). The sample frame for this study comprises of 645 SMMEs listed with the CTMM economic development database. The database does not represent all SMMEs in the CTMM, but it was worthwhile as it was difficult to get the actual number of SMMEs in Tshwane. The database is credible as it is updated every year. The next subsection discusses the sample size of this study.

3.3.3 Sample size

It is impractical to get information from the entire population as it would take much too long and be too expensive (Walliman, 2011:93). To soothe things, a small group of the cases was selected from a large group (Walliman, 2011:93). A sample ‘is the subset of the population” (Bryman, 2012:187). The need to sample offers a valid alternative to a census when it would be impracticable to survey the entire population; when budget and time constraints prevent the investigation (Saunders *et al*., 2012:260). Saunders *et al* (2012:260) maintain that the choice of sample size is governed by the following:

- The confidence that one needs to have in data – the level of certainty of the characteristics of the data collected will represent the characteristics of the total population.
- The margin of error that one can tolerate – the accuracy that one requires for any estimates made from the sample.

- The types of analyses that one is going to undertake – number of categories that one wishes to subdivide data.
- The size of the total population from which sample is being drawn.

The sample size of this study was 243. To determine the sample size of this study, Roasoft sample size calculator was used. The researcher got the sample size of 243 SMMEs, after assuming a margin error of 5%, confidence level of 95% and a population of 645 SMMEs. After the determination of a sample size, the researcher decided on which selection method to use when selecting a sample. The following section addresses the sampling technique that was used.

3.4 SAMPLING TECHNIQUES

According to Saunders *et al*. (2012:261), the choice of the sample size and technique used is influenced by factors such as the availability of resources primarily financial support and time available to select the sample and to collect data. Sampling technique enables one to minimize the amount of data that needs to be collected by considering only data from a subgroup rather than all possible cases or elements (Saunders *et al*., 2012:258). Two types of sampling techniques of which the selection may be based are probability and non-probability (Saunders *et al*., 2012:261). In probability sampling, a sample is selected using random selection so that each unit in the population has a known chance of being selected (Bryman, 2012:187). Bryman *et al.* (2014:170) highlight that "the aim of probability sampling is to keep sampling error to a minimum". However, with non-probability sampling, the chance of selecting a particular individual is unknown as the population size is unknown.

Probability sampling technique was deemed appropriate for this study in order to make inferences from the sample about the population to answer research questions and to meet the objectives of the study (De Vos *et al.*, 2011:391). According to Saunders *et al.* (2012:265), the findings of the data collected using any probability samples are generalised to the population based on statistical probability. There are specific techniques that are used to select a representative sample from the population of the different characteristics (Walliman, 2011:98). The following paragraph gives a brief description of various techniques of probability sampling.

According to Saunders *et al*. (2012:270), the choice of probability sampling relies on research questions and objectives. There are five main techniques of probability sample, which include the following:

- Simple random sampling – involves the selection of sample at random from the sampling frame using either a computer or random number tables.
- Systematic random sampling – involves the selection at regular intervals from the sampling frame.
- Stratified random sampling – is a modification of random sampling in which you divide the population into two or more relevant and significant strata based on one or a number of attributes.
- Cluster random sampling – is similar to stratified random sampling as one need to divide the population into discrete groups prior to sampling. In other words, sampling frame is the complete list of clusters rather than a complete list of individual cases within a population.
- Multi-stage sampling – it involves modifying a cluster sample by adding at least one more stage of sampling that also involves some form of random sampling (Saunders *et al*., 2012:270).

For the purpose of this study, simple random sampling was used to select the sample for the population. The random number table was used to randomly select the sample from the sampling frame. The list of SMMEs was obtained from the CTMM Economic Development database. The units of analysis for the study were the owners, chief executive officers (CEOs) and managers of SMMEs in the CTMM. The section below discusses the research instrument.

3.5 RESEARCH INSTRUMENT

A structured questionnaire consisting of closed-ended questions was used to collect data. De Vos *et al*. (2011:198) stress that closed-ended questions are valuable when a significant amount of information about a subject exists and the responses are relatively well known. Because closed-ended questions are suggestive, respondents are forced to choose any answer and the interpretation of forced-choice answers may differ among them; as a result, this threatens validity (Bryman *et al*., 2014:201).

The research instrument was developed based on the conceptual framework discussed in Chapter 2. Actual usage, attitude towards and intention to adopt e-banking were used as independent variables. Perceived usefulness, perceived ease of use and all perceived risk factors were used as explanatory variables. Dependant variable is a variable that changes in reaction to changes in other variables. Conversely, an independent variable is a variable that is being manipulated or changed to measure its influence on a dependent variable (Saunders et al. 2012:175).

The research questionnaire constructs and items were adapted from previous new technology adoption questionnaires with little and no modifications (Casaló, Flavián & Guinalíu, 2008; Lee, 2009; Nasri & Charfeddine, 2012:11; Al-Rfou, 2013:620; Chen, 2013:424; Mazhar *et al*., 2014:486; Santoso & Murtini, 2014:279; Snyman, 2014; Josuha & Koshy, 2015:06; Nasir, *et al*., 2015:466; Ong & Lin, 2015:335; Redlinghuis, 2010; Alalwan, Dwivedi, Rana & Williams, 2016:138) and the literature. These constructs were previously subjected to reliability and validity tests. In the study of Nasri and Charfeddine (2012:08), reliability for all variables was above 0.6 which indicatedinternal consistency. All factor loadings were above 0.5 for all items, indicating that the constructs were valid. Lee (2009:135) reliability for all constructs was above 0.80 and factor loadings were ranging between 0.57 to 0.8, indicating that the constructs were valid and reliable. Appendix B gives an outline of the questions per construct and mentions the sources. The most widely used measurement format for measuring attitude is Likert scale (Bryman *et al*., 2014:203). It is used in research in which people express attitudes in terms of ordinal-level categories (De Vos *et al*., 2011:212). The five-point Likert scale ranging from "strongly agree to strongly disagree" was used to measure the constructs. This was employed to minimise measurement problems (De Vos *et al*., 2011:213). The questionnaire was divided into two sections:

Section A: Business information and demographic information.

Section B: Questions address the usage and factors that influence adoption of e-banking. It consists of the following:

Construct 9. Usage of e-banking – consists of the following sub-constructs:
Construct 9.1. Use of e-banking services – consists of ten items.
Construct 9.2. Frequency of e-banking – consists of nine items.
Construct 9.3. Duration of e-banking – consists of three items.
Construct 9.4. Limitations to usage of e-banking – consists of nine items.
Construct 9.5. E-banking experience – consists of eight items.
Construct 9.6. Usability of e-banking – consists of seven items.
Construct 10. Perceived usefulness – consists of seven items.
Construct 11. Perceived ease of use – consists of six items.
Construct 12. Perceived risk – consists of the following sub-constructs:
Construct 12.1. Privacy risk – consists of six items.
Construct 12.2. Security risk – consists of five items.
, Construct 12.3. Performance risk – consists of seven items.
Construct 12.4. Financial risk – consists of seven items.
Construct 12.5. Social risk – consists of four items.
Construct 13. Attitude – consists of seven items

Construct 14. Intention to use e-banking – consists of six items.

See Appendix A for the questionnaire used and Appendix B for the sources used to design the questionnaire. The next section discusses data collection.

3.6 DATA COLLECTION

Two types of data collection techniques are generally used for empirical studies, namely, primary and secondary data sources. According to Tustin Ligthelm, Martins, and Van Wyk (2010:120), secondary data is defined "as existing data that can be used in solving the problem in question". The main sources of secondary data for this study were articles, journals, websites, books, press reports, annual reports, theses, and dissertations. The data collection method employed in the study is discussed in the paragraph below.

Structured survey questionnaire was used to collect primary data. De Vos *et al.* (2011:186) argue that "the objectives of a questionnaire are to obtain facts and opinions about a phenomenon from people who are informed on the particular issue". Saunders *et al*. (2012:419) point out that questionnaires are likely to be used for descriptive and explanatory research. According to De Vos *et al.* (2011:188) hand delivered questionnaires ensure high response rate and fieldworkers may provide clarity where the respondents experience difficulties. However, hand delivered questionnaires are expensive to administer and time consuming (De Vos *et al*. 2011:188). A total of 243 structured questionnaires and consent letters were printed and hand delivered to the owners, managers or CEOs of SMEs in the CTMM, with the assistance of three trained fieldworkers. Only 160 questionnaires were returned presenting the response rate of 66%, which is good. The next section discusses reliability.

3.7 RELIABILITY AND VALIDITY

3.7.1 Reliability

The research instrument was successfully subjected to reliability and validity tests utilising Cronbach's alpha and factor analysis; even though the research questions were previously validated by other authors (Lee, 2009; Nasri & Charfeddine, 2012; Al-Rfou, 2013; Chen, 2013; Mazhar *et al*., 2014; Santoso & Murtini, 2014; Josuha & Koshy, 2015; Nasir *et al*., 2015; Ong & Lin, 2015; & Alalwan *et al*., 2016). The reason why the questions were subjected to these tests is that they were used in other countries; and countries differ in characteristics. Reliability

refers to the “consistency of a measure of a concept” (Bryman, 2012:169). Cronbach’s alpha was used to measure internal reliability of the measurement scales (questionnaires). The next subsection discusses validity.

3.7.2 Validity

A pre-test was conducted to ensure the appropriateness of the research instrument. Experts in the field, academics and a statistician were contacted to review the research instrument in order to establish face and content validity and eliminating the questions that could not be analysed statistically. Exploratory factor analysis using principal component analysis was utilised to determine construct validity. The questionnaires were pilot tested to ensure face validity (Saunders *et al*., 2012:451). In this study, the pilot study was carried out on SMMEs which were not selected as the representative of the sample (Bryman *et al*., 2014:209). The participants were selected from the list of the SMMEs registered with the CTMM, and those SMMEs are not the part of the sample. The next section discusses data analysis.

3.8 DATA ANALYSIS

The returned questionnaires were captured and the data were subjected to the data-cleaning. More importantly, data were captured on a computer file (Microsoft Excel document) and exported to Statistical Packages for Social Sciences (SPSS).

In the first stage, descriptive statistics was used to calculate the frequencies, mean, standard deviation, and Cronbach alpha. Descriptive statistics enable the researcher to describe and compare variables numerically (Saunders *et al*., 2012:502). De Vos *et al.* (2011:251) remark that descriptive statistics is used to describe numerical data through organising, summarising and interpreting sample data. Cronbach’s alpha was used to test the internal reliability. Guideline of reliability is as follows:

- Reliability of 0.9 and above shows excellent reliability.
- Reliability of 0.70 to 0.09 shows high reliability.
- Reliability of 0.50 to 0.70 shows a moderate reliability.
- Reliability of 0.50 and below shows lower reliability (Hinton *et al*., 2014:357).

Second stage, exploratory factory analysis was used to summarise data so that relationships and patterns can be easily interpreted and understood. Principal component analysis method

was used with a Varimax rotation method. Two factors were considered to determine the appropriateness of the factor analysis. Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) with value of greater than 0.5 and Bartlett's Test of Sphericity with p-value of less than 0.05 indicated that factor analysis is appropriate (Brownlow, 2014:346). To determine the number of factors which are important; all factors with eigenvalues of one or greater were considered. The next paragraph discusses correlation analysis.

Thirdly, correlation analysis was used to determine the relationship between perceived usefulness and perceived ease of use, perceived risks dimensions, attitude towards and intention to adopt e-banking and actual usage. The statistical significance cut-off value was set at the 95% confidence interval level with a value of less than 0.05. Pearson's coefficient was used to exam the relationship between variables. Coefficient correlation (r) yield statistic that ranges from -1 (indicating a perfect negative correlation) to +1 (indicating a perfect positive or 1 (a perfect positive correlation); and a value of zero indicates no correlation (Hinton, McMurray & Brownlow, 2014:298). According to De Vos *et al*. (2011:273), a correlation between 0 and 0.3 is described as weak; between 0.35 and 0.59 is moderate; and 0.6 and 1 as strong. The next paragraph discusses regression.

Lastly, the multiple regression analysis was used to determine independent variables that predict dependent variables. Regression analysis is a method of forecasting an outcome variable from one predictor (independent) variable (simple regression) or several predictor variables (multiple regression) (Field, 2009:198). The purpose of regression analysis is to "fit a model that best describes the data" (Field, 2009:198). Multiple regression employs more than one independent variable as a predictor of the dependent variable and enables the examination of the contribution of each independent variable (Hinton *et al*., 2014:326). It gives a value of the strength of the relationship (Hinton *et al*., 2014:326).

The following assumptions of multiple regression analysis were used:

- Normally distributed errors – residuals should be random, normally distributed variables with a mean of 0. Histograms are used to examine normality (Field, 2009:221).
- The relationship between variables should be linear. Scatter plots are used to examine linearity (Field, 2009:220).
- Homoscedasticity – the variance of the residual terms should be constant (Field, 2009:220).

- Independence errors – residual terms should be uncorrelated. Durbin-Watson is used to test for serial correlation between errors. It can vary between 0 and 4 with value of 2 meaning that the residuals are uncorrelated (Field, 2009:220).

The fit of the regression model was assessed based on two things. Firstly, Model Summary, which shows the following: the R^2 which indicates the proportion of variance in the independent variable can be accounted for by the independent (predictor) variable; and the Durbin-Watson statistic with the value of close to 2 (and between 1 and 3). Secondly, the ANOVA (with p-value of less than 0.05) which indicates that the model is significantly better in predicting the outcome (Field, 2009:236). Thirdly, coefficients table shows the contribution of individual variables to the regression model. A predictor with a p-value of less than 0.05 indicates that the variable has a significant contribution and also a variable with bigger standardised beta indicates that the variable is the most important predictor (Field, 2009:241). The research methodology of this study is depicted in Figure 3.2 below.

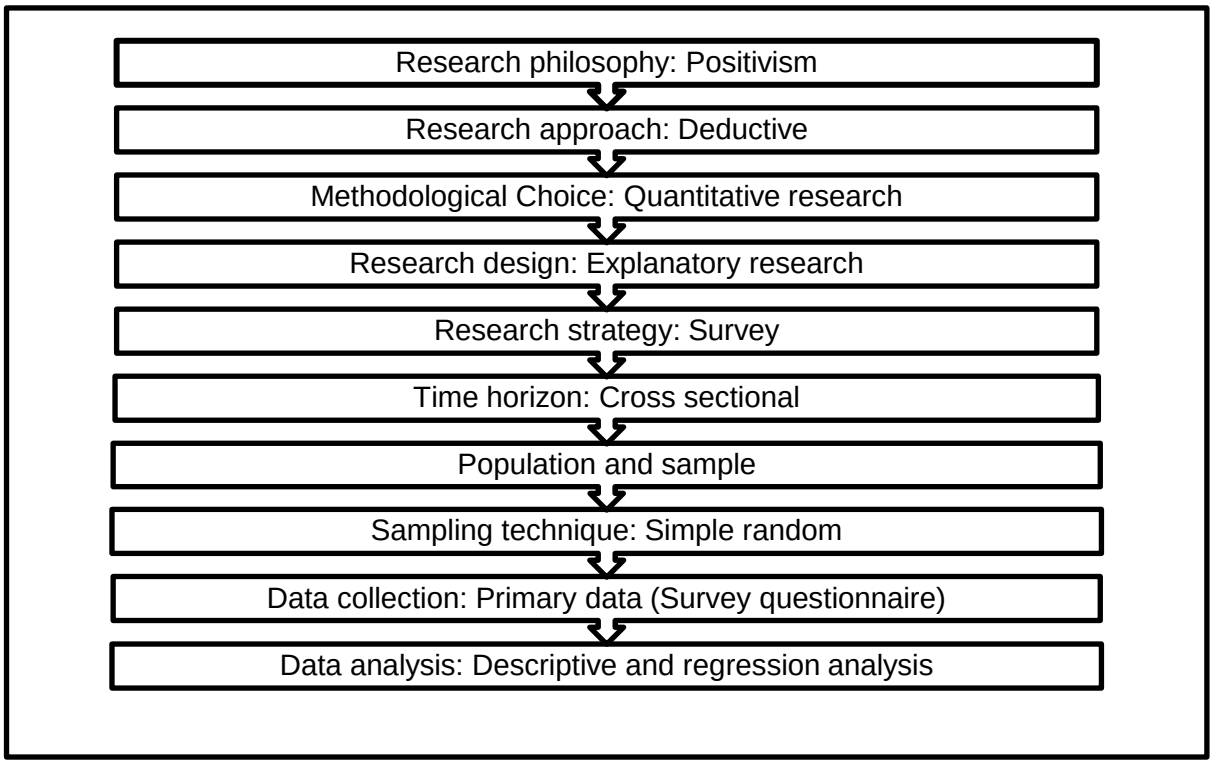

Figure 3.2: Research method typology

Source: Own compilation

3.9 LIMITATIONS OF THE STUDY

E-banking in South Africa is still in its infancy and adopters of e-banking are pioneers. The data drawn from this sample may not be in line with theory. The reason is that the participants might not understand the concept of e-banking as e-banking is still emerging in South Africa. Another limitation is that the study was conducted in one province, which is Gauteng. In addition, the study was conducted in one city (Tshwane). Therefore, the results of the study are limited to SMMEs situated in the CTMM. The study is limited to SMMEs in the CTMM. This was because of time and financial constraints, and it was not easy for the researcher to access all SMMEs in the CTMM. The aim of the study was not to generalise the findings beyond the sample frame, in the sense that SMMEs characteristics differ from municipality-to-municipality and from province-to-province. By generalising the findings to Gauteng Province, this is "over-generalisation" which is regarded as one of the pitfalls of interpretation (Tustin et al. 2010:697). Likewise, Bryman (2012:176) emphasises that inferences should not be made beyond the population from which the sample was selected. The next section discusses ethical considerations.

3.10 ETHICAL CONSIDERATIONS

According to Cooper and Schindler (2014:28), ethics "are norms or standards of behaviour that guide moral choices about our behaviour and our relationships with others". They further explain that the goal is "to ensure that no one is harmed or suffers adverse consequences from research activities". Principles of ethical considerations according to De Vos *et al*. (2011:115) are: avoidance of harm, voluntary participation, informed consent, deception of subjects, and violation of privacy, anonymity or confidentiality. For the purpose of this research, special attention was given to the following:

- Ethical clearance approval was granted by Unisa's ethical clearance committed (see attachments).
- Approval letter to use the CTMM' SMMEs database list was obtained from the CTMM Economic Development Department (see attachments).
- Avoidance of harm - the researcher ensured that the respondents are not subjected to any physical or emotional harm by informing respondents beforehand about the potential impact of the investigation (see Appendix C).

- Voluntary participation - the letter informing respondents that participation is voluntary and they have the right to withdraw from the study at any time was issued during the survey (see Appendix C).
- Informed consent - a consent letter addressing the following: information on the goal of the research, procedures for completing the questionnaires, time required to complete the questionnaires, no harm to participation, voluntary participation, and respondents' value in participation. The respondents were required to read and sign the consent letter before completing the questionnaire, to ensure that they agreed to participate (see Appendix C and D).
- Confidentiality - The researcher, field workers and statisticians have signed a confidential agreement form not to disclosed any of this information or use this information against the respondents (see Appendix E and F).

The next section discusses the conclusion of this chapter.

3.11 CONCLUSION

The methodology chapter should enable a researcher to achieve research objectives of the study. The possible research approaches and methodology used in this study were discussed in this chapter. This study followed a positivism philosophical point of view and deductive approach. In addition, the study employed quantitative method and it is explanatory in nature. A cross-sectional survey strategy was employed to answer the research objectives. The population and sampling of the study were discussed. The research instrument for this study was questionnaires and trained fieldworkers were used to collect primary data. Data analysis techniques used in these study such as means, standard deviations, Pearson's correlation, and multivariate regression were discussed. Moreover, the system used to capture and analyse data was mentioned. Limitations and ethical consideration procedures followed in this study were explained. The next chapter discusses the results and interpretations of the results of this study.

CHAPTER 4: RESULTS AND DISCUSSIONS

4.1 INTRODUCTION

In the previous chapter, the methodology and data analysis techniques employed in this study were explained and discussed. This chapter now presents the results of the statistical analyses and their interpretations relative to the research objectives of the study. Section 4.2 provides descriptive statistics on demographic information. Section 4.3 provides descriptive statistics on the usage of e-banking. Section 4.4 provides the reliability. Section 4.5 provides validity of the constructs. Section 4.6 provides the correlation analysis. Section 4.7 provides the regression analysis results. Section 4.8 provides the summary of the results. Finally, section 4.9 presents conclusions.

The primary objective was to investigate the factors that influence the adoption and usage of e-banking among SMMEs in the CTMM. The secondary objectives were as follows:

- To determine the factors influencing the usage of e-banking among SMMEs in the CTMM.
- To determine the influence of intention to adopt e-banking on actual usage of e-banking.
- To determine the influence of perceived usefulness and attitude towards e-banking on intention to adopt e-banking.
- To determine the influence of perceived ease of use on perceived usefulness.
- To determine the influence of perceived usefulness, perceived ease of use, security risk, privacy risk, performance risk, financial risk and social risk on attitude towards e-banking.

The next section discusses the descriptive statistics on demographic information.

4.2 DESCRIPTIVE STATISTICS ON DEMOGRAPHIC INFORMATION

Descriptive statistics/methods are used to report the distributions (or spread) of a sample or population across a wide range of variables (using nominal, ordinal, interval and ratio). The aim of these methods is to produce a scope of the characteristics of such distributions through frequencies, measures of central tendency and measures of dispersion (De Vos *et al*., 2011:251). The next subsection discusses the descriptive statistics for SMME owners' information.

4.2.1 Demographic information

The purpose of this section was to give the description and characteristics of the respondents. A total of 234 questionnaires were distributed of which 160 were returned, presenting a response rate of 68%. In terms of gender, the ratio of females to males was almost three to two with 97 males accounting for 60.6% and 63 females accounting for 39.4%. This is in line with the profile of SMMEs in South Africa (Seda, 2016), where males dominate this sector. The results are also in line with other studies conducted locally and internationally (Choeu, 2013:37; Mbuya, 2011:47; Selamat *et al*., 2013:85; Grandon & Pearson, 2004:88). The next paragraph discusses the age of the respondents.

In terms of age, most of the participants accounting to almost a half, that is 48.1% (n=76), fell into the age group 30-39 years, while 24.1% (n=38) were aged 40–49 years, 16.4% (n=26) were aged 50 years and above while 11.4% (n=18) were below 30 years. One can conclude that almost half (48.1%) of the respondents were middle aged. The next paragraph discusses education of the respondents.

In terms of education, the majority of the respondents had either a below Grade 12 educational qualification or a Grade 12 qualification. About 31.2% (n=50) had Grade 12 (matric) and 30% (n=48) below Grade 12. The diplomas constituted 15% (n=24) whilst the certificate holders were 13.8% (n=22). Those with a degree accounted for 10% (n=16). Looking at the statistics, one can conclude that very few respondents had a degree. The result of the level of education in this study is in line with that of Seda (2016:10), which reported that the majority of SMMEs' owners (60%) in South Africa have a secondary education. The education profile in this study is consistent with that of the another study conducted internationally (Chuwa, 2015:138). The next paragraph discusses the number of years in operation.

In terms of number of years in operation, about 33.3% (n=53) indicated that they had 2–3 years, 22.6% (n=36) indicated that they had been in business for 4–5 years. In addition,18.8% (n=30) had been in business for about 6–10 years, 13.8% (n=22) for almost a year and 11.3% (n=18) for more than 10 years. It can be noted that on average, more than half of the SMMEs have been in business for more than three years. Almost half of the SMMEs are in operation for less than three years. The results are also consistent with those of Lekhanya and Mason (2014:340), where the highest percentage of SMMEs were in existence for less than three years. The next paragraph focuses on the on the position in the business.

In terms of position in the business, 52.2% (n=83) who responded to the questionnaire were owners while 47.8% (n=76) were managers. Therefore, the ratio of owners to managers was almost 1:1. It shows that owners manage most of the SMMEs. The next paragraph discusses the number of employees.

In terms of the number of employees in the business, about 63.1% (n=99) indicated that there were not more than five, 26.1% (n=41) indicated that there were 6-10 employees while 10.8% (n=17) indicated that there were more than 10. Therefore, the majority of the SMMEs do not employ more than five people. The next paragraph focuses on the average annual income of SMMEs.

The majority of the SMMEs have an average annual income of not more than R100 000 as evidenced by a proportion of 76.3% (n=119). About 10.3% (n=16) had an average annual income of R100 001 to R200 000, 7.1% (n=11) had an average annual income of R200 001 to R500 000 while 6.4% (n=10) had an average annual income of more than R500 000. Looking at the statistics, most of the businesses in this study have an annual income of less than R100 000, implying that micro and small enterprises are dominating.

In terms of business sector in which SMMEs operate, it can be noted that 30% (n=48) are in wholesale, retail trade, hotels and restaurants, which is the highest percentage. The rest, that is, 23.1% (n=37) were categorized as “others” and this was composed of SMMEs in the salon business, mining and quarrying, and pharmaceutical among others. Wholesale, retail trade, hotels, and restaurants sector has the highest percentage. The results are consistent with those of Choeu (2013:35), Lekhanya and Mason (2014:340), Grandon and Pearson, (2004:88). The results also resonate with the SMME profile of South Africa, where retail and wholesale trade is the most dominant sector in the SMME market (Seda, 2016:19). This is because qualifications or special skills are not critical to enter this industry; hence, it is dominating. The demographic information is shown in Table 4.1. below.

Table 4.1: Demographic information

Gender	Category	Frequency	Percentage
	Male	97	60.6
	Female	63	39.4
	Total	160	100
Age	Below 30	18	11.4
	30 - 39	76	48.1
	40 - 49	38	24.1
	50 and above	26	16.4
	Total	158	100
Level of education	Below Grade 12	48	30.0
	Grade 12 (Matric)	50	31.2
	Certificate	22	13.8
	Diploma	24	15.0
	Undergraduate degree	8	5.0
	Postgraduate degree	8	5.0
	Total	160	100.0
Years business has been in operation	Almost a year	22	13.8
	2 - 3	53	33.3
	4 - 5	36	22.6
	6 - 10	30	18.8
	More than 10	18	11.3
	Total	159	100.0
Position in business	Owner	83	52.2
	Manager	76	47.8
	Total	159	100.0
Annual average income	At most R100 000	119	76.3
	R100 001 – R200 000	16	10.3
	R200 001 – R500 000	11	7.0
	More than R500 000	10	6.4
	Total	156	100.0
Business sector	Wholesale, retail trade, hotels and restaurants	48	30.0
	Other	37	23.1
	Transport, storage and communications	21	13.1
	Manufacturing	12	7.5
	Construction	11	6.9
	Electricity, gas and water	11	6.9
	Agriculture, forestry and fishing	10	6.25
	Finance, insurance, real estate and business services	10	6.25
	Total	160	100.0%

Source: Own compilation

The next section discusses descriptive statistics on the usage of e-banking

4.3 USAGE OF E-BANKING SERVICES

The aim of this section was to answer the first objective of the study, which is to determine the adoption rate and usage of e-banking among SMMES in the CTMM. Usage of e-banking was measured using the following dimensions:

- Use of e-banking.
- Frequency of using e-banking.
- Duration of using e-banking.
- Factors hindering adoption and usage of e-banking which are limitations.
- E-banking experience.
- Usability of e-banking.

Most of the items were measured using more than nine items except for frequency of e-banking and duration, which were measured by one item. The next subsection discusses descriptive statistics on the use of e-banking.

4.3.1 Use of e-banking

The aim of this construct was to find out which e-banking services are utilised by SMMEs. This will enable commercial banks to know which e-banking services are mostly used by SMMEs. Usage of e-banking was measured using a five-point Likert scale ranging from 1 (never) to 5 (all the time).

It can be observed that the majority of the respondents sometimes use e-banking to transfer funds (69.1%); view balances (67.3%); get account statement (69.4%); and get details of accounts (67.3%). On the contrary, the respondents indicated that they have never used e-banking to view loans (44.9%), apply for a loan (43.0%) or trade internationally (37.4%). This explains their need to visit branches. The reason for non-use may be either the participants have no confidence or they do not know how to perform these transactions. According to Maduku (2011:136), banks must identify the opportunity to stimulate current users of e-banking into utilising e-banking services that are not used. Therefore, commercial banks need to educate their customers on how to utilise e-banking services. This will ensure full adoption and usage of all e-banking services by users and non-users of e-banking. The next paragraph outlines the results of other empirical studies.

The empirical studies reported that e-banking was mostly used to pay bills, transfer funds, view account balance, and transfer money (Chuwa, 2015:148; Mkoka, 2014:41; Maduku, 2011:103; Nel, 2013:153; Ngandu, 2012:92; & Mojalefa, 2013:59). However, bill payments and money transfer were rated low in the study conducted by Mkoka (2014:41). The results are shown in Figure 4.1 below.

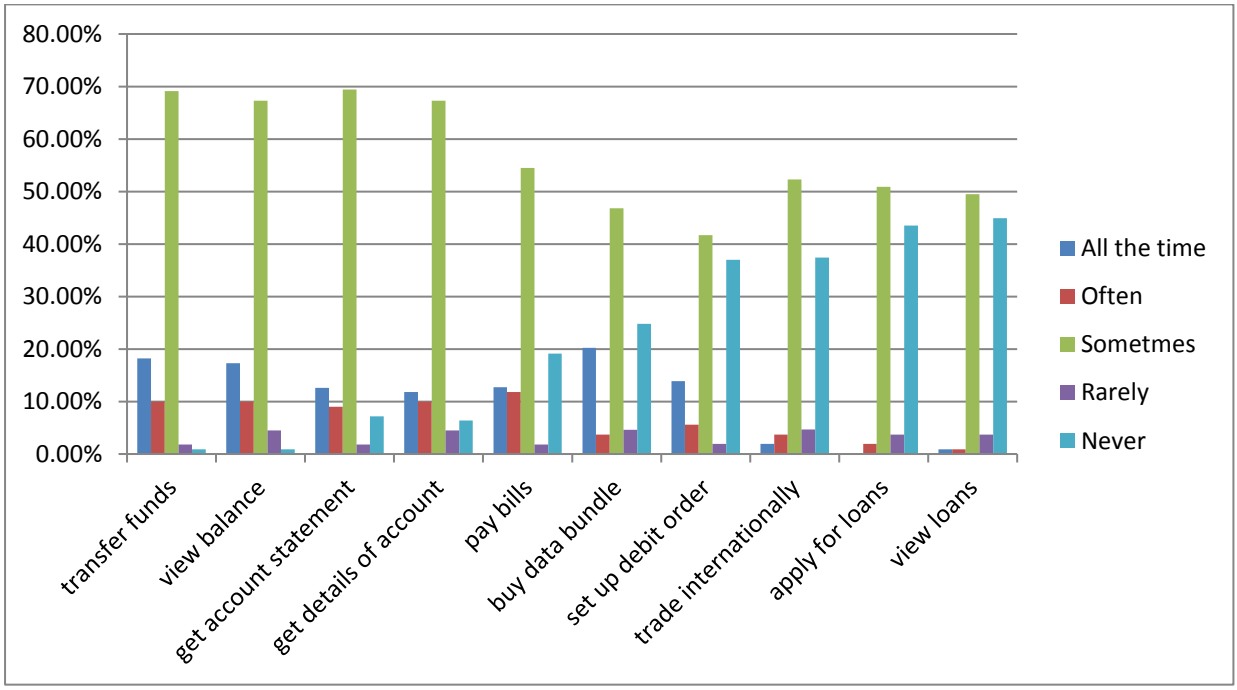

Figure 4.1: Use of e-banking

Source: SPSS

The next subsection discusses the descriptive statistics on frequency of using e-banking.

4.3.2 Frequency of using e-banking

In terms of how frequently they use e-banking, 34% (n=53) of the respondents indicated that they use e-banking monthly. However, 25.6% (n=40), indicated that they have never used e-banking. Therefore, it can be concluded that a quarter of the SMMEs are not using e-banking and the majority are using it on a monthly basis. The results are consistent with that of Maduku (2011:102) and Ngandu (2012:91). The results imply that there are some SMMEs whose owners or managers are reluctant to use e-banking. Commercial banks need to educate their customers on the benefits of e-banking and how to utilise e-banking services in order to encourage full adoption and continuous usage of e-banking. The information is shown in Figure 4.2 below.

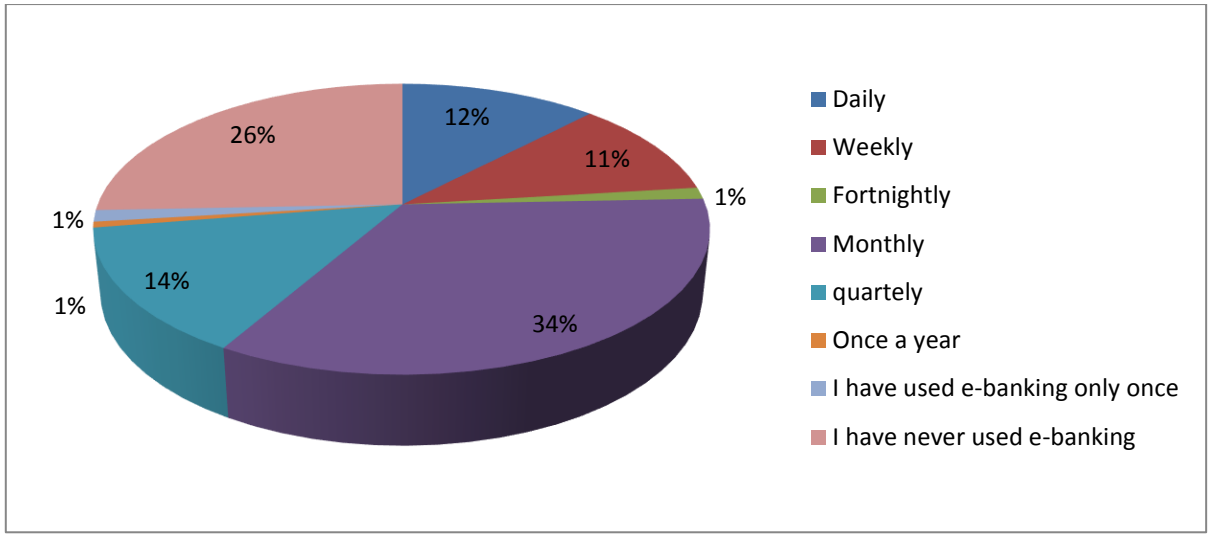

Figure 4.2: Usage of e-banking frequency
Source: SPSS

The next subsection discusses the descriptive statistics for duration of e-banking using e-banking.

4.3.3 The duration of using e-banking

The majority of respondents, that is 60% (n= 66), have been using e-banking for less than two years, followed by 28.2% (n=42) of those who have been using it for more than two years, and only 2% (n=2) have been using e-banking for less than a year. The results infer that the respondents have not been using for a long time; so they have limited experience on e-banking. The information is shown in Figure 4.3.

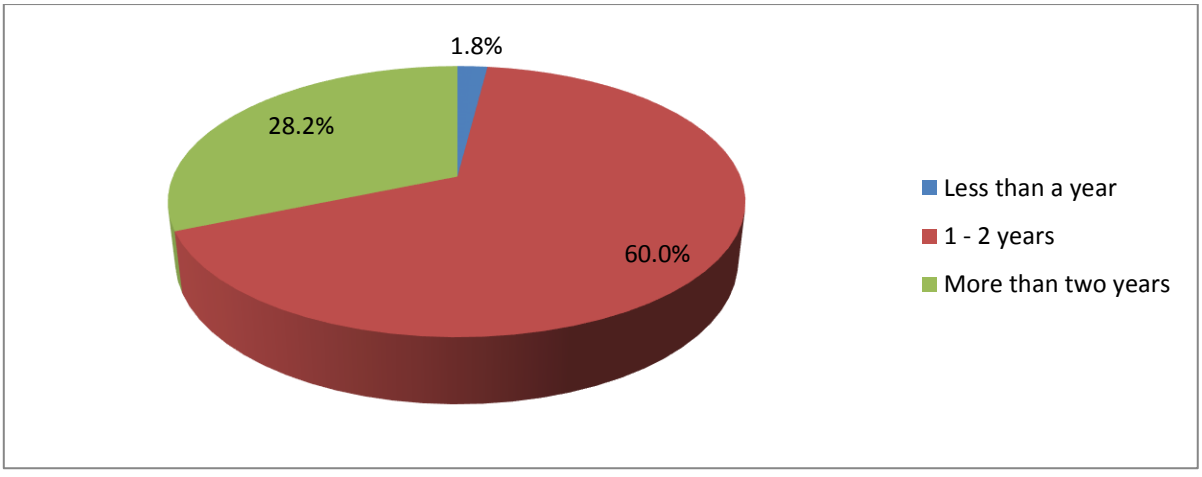

Figure 4.3: Duration on usage of e-banking services
Source: Own compilation

The next subsection discusses the descriptive statistics for factors that hinder adoption and usage of e-banking.

4.3.4 Factors hindering adoption of e-banking

The items on factors hindering adoption and usage of e-banking were nine and they were measured on a Five-point Likert scale ranging from 1 (not to an extent at all) to 5 (to a very large extent). The item “cost of data is too high” had 50.9% (n=79) indicating that it occurs to a large extent. Followed by “cell phone screen size is too small (49.1%); “lack of knowledge about e-banking” (48.7%); and information is not detailed enough” (48.4%).

The results suggest that the “cost of data bundle” is the main barrier that hinders the adoption and usage of e-banking with the highest mean, followed by lack of receipt as proof of payment, cell phone screen size, lack of knowledge about e-banking, limited information, lack of instant problem solving, lack of trust on e-banking and inefficiency of the e-banking system. Evidently, this explains why some of the respondents reported that they sometimes use e-banking services. The results of this study are consistent with that of the study conducted by Chuwa (2015:153) on SMMEs in Tanzania. Chuwa (2015) maintains that the cost of data, lack of skills and lack of trust are the main issues for non-use and reluctance to adopt e-banking. The result supports the study of Dilver (2015:130), which pointed out that SMMEs find it difficult to adopt and manage new technology owing to lack of knowledge of the technology. However, the results are in contrast with the findings of Masinge (2010:64) where the majority of the respondents disagreed that the cost of data is expensive. The study of Mkoka (2014:68) in Tanzania, also established lack of knowledge as the barrier for full adoption of e-banking. Therefore, some of the e-banking services are used and some are not. Commercial banks should make access to e-banking cost effective to remove the cost barrier. Education is key to the issue of lack of knowledge in order to provide customers with detailed information about e-banking. Figure 4.4 below shows the information.

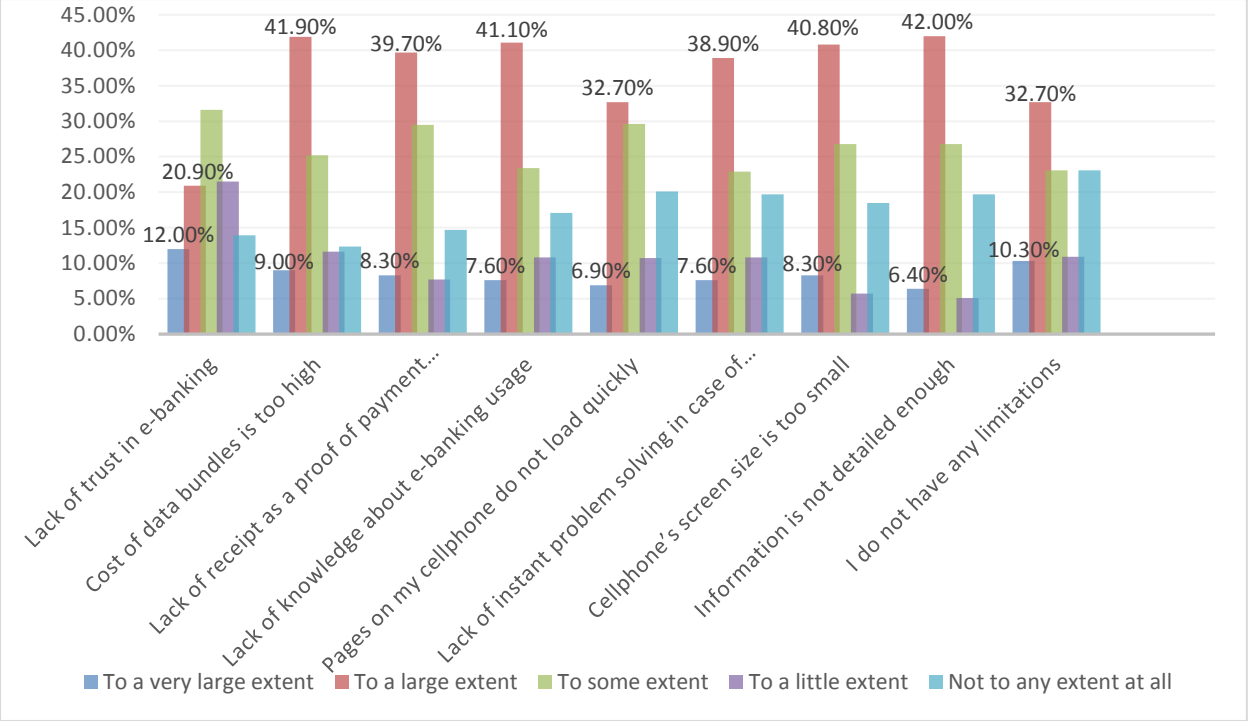

Figure 4.4: Factors that hinder adoption of e-banking
Source: Own compilation

The next subsection discusses descriptive statistics for e-banking experience.

4.3.5 E-banking experience

The aspects with more than 70% of the respondents indicating that it sometimes happens are: “when using e-banking I experience problems” (83.8%); “with e-banking I am able to do what I need to do without visiting my bank” (83.8%; “when using e-banking I receive error messages when browser attempts to establish the connection” (81.9%); “when I log questions or problems during internet banking sessions they are resolved accurately” (76.9%); and “when using e-banking it is difficult to put information for typing” (75.7%). The next paragraph discusess the conclusion of the results.

It can be noted that all the issues relating to log in problems tend to happen sometimes. Screen size and difficulty in putting information seem to be the challenges that are faced by cell phone banking users. The problems and error messages are the issues that are related with the efficiency of network and e-banking servers. The information is indicated in Figure 4.5 below.

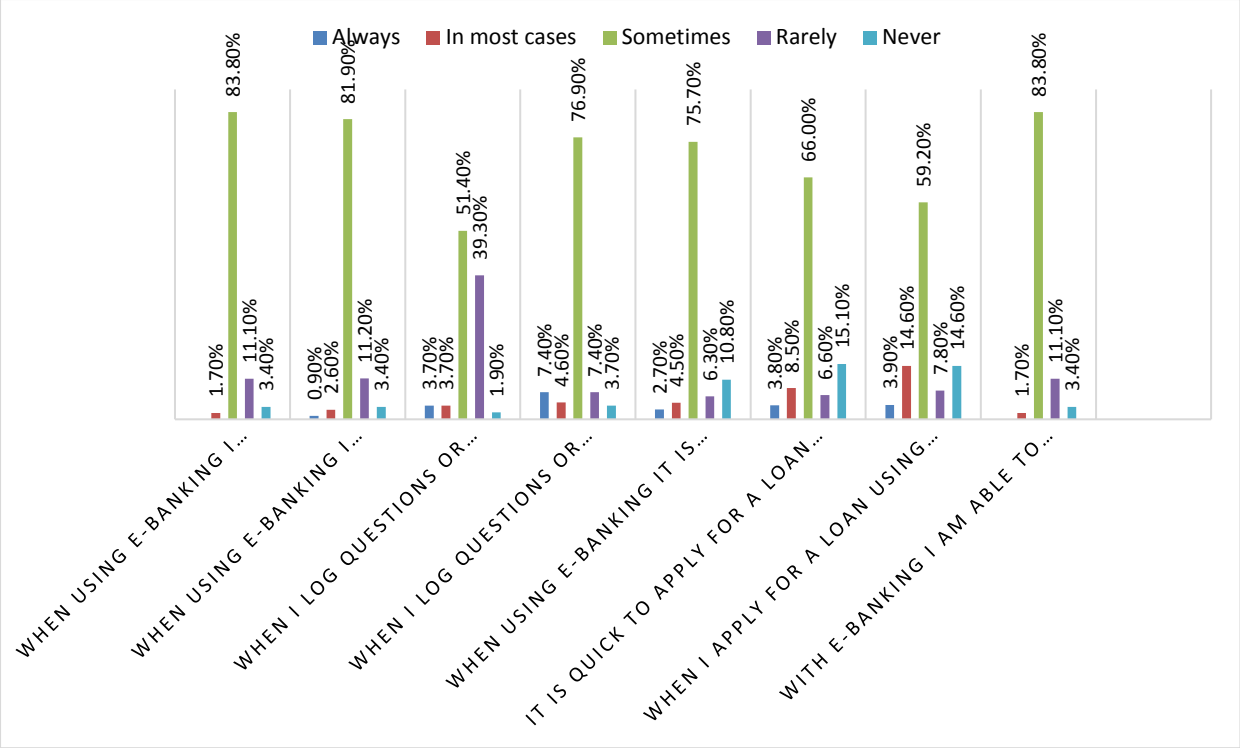

Figure 4.5: Experience of e-banking

The next subsection discusses descriptive statistics for the usability of e-banking.

4.3.6 Usability of e-banking

In terms of issues on usability of e-banking, there were nine items measured on a five-point Likert scale that ranged from 1 (strongly disagree) to 5 (strongly agree). A mean of at least 3.5 indicated that the respondents were in agreement. The results indicates that the items with an agreement level of more than 70% are: *It was easy to download the e-banking app* (85.5%); *E-banking is flexible* (79.5%); *The language used on the website is clear and understandable* (79.3%); *The bank always notifies me about risks of using e-banking* (78.5%); *E-banking error messages are instructive* (74.3%); *It can do what I intend to do* (71.8%); and *The help function of e-banking is efficient* (71.8%). The issues that there is an option for preferred language and that error messages tell me where the problem is had levels of agreement close to 60%. It can be concluded that the respondents were in agreement on the usability of e-banking (See Figure 4.6).

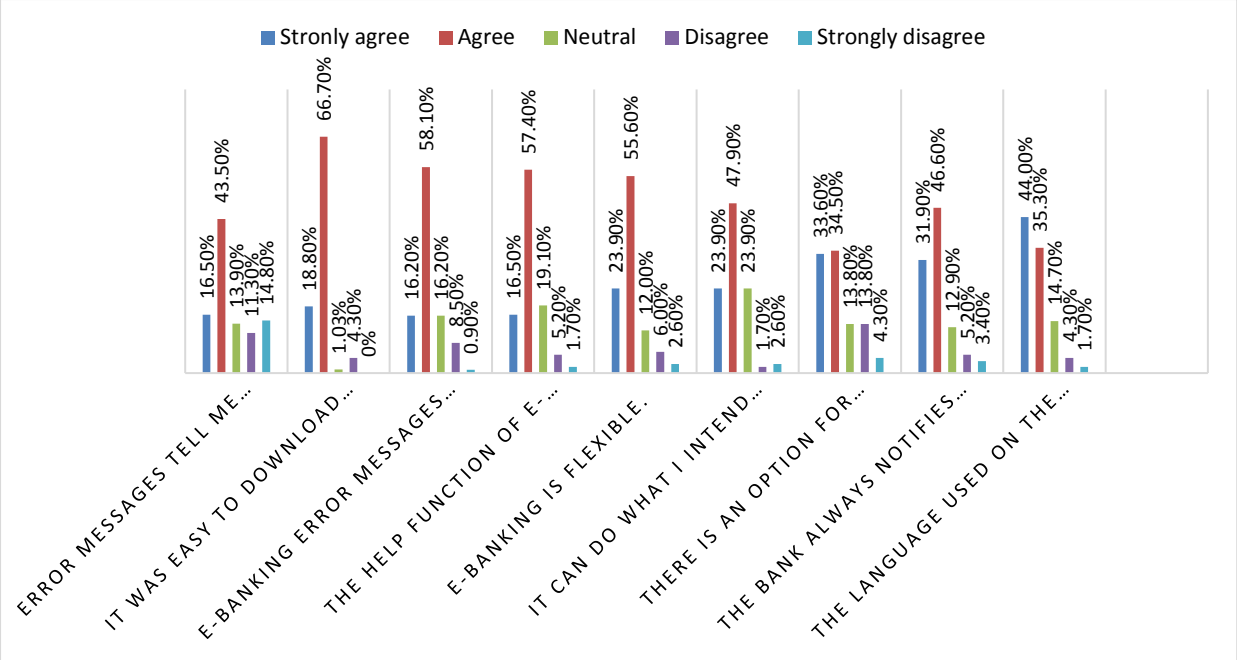

Figure 4.6: Usability of e-banking

The next subsection discusses descriptive statistics for respondents' comments on e-banking.

4.3.7 Respondents'comments on e-banking

The respondents were asked to indicate any other comments they might have. This was a multiple response question where a person gave more than one response but only 11 people gave their comments. The respondents indicated that they need presentation on e-banking. Cautiousness in using the e-banking was mentioned and also that if security is guaranteed then people might use it. Some respondents indicated that the survey was informative, beneficial and it assisted them in gaining knowledge on e-banking. The information is shown in Table 4.2 below.

Table 4.2: Any other comments

Comments	Frequency	% of cases	Rank
Prefer interacting with bank staff	1	9.1%	3
Survey has assisted in gaining knowledge in e-banking	1	9.1%	3
Cautious about e-banking since I have never used it	1	9.1%	3
Need a presentation first in e-banking	1	9.1%	3
Survey has been informative and beneficial	1	9.1%	3
Use feedback to determine practicality of e-banking	1	9.1%	3
E-banking is necessary if security is guaranteed	1	9.1%	3

Source: Own compilation

The next section discusses the internal reliability of the research instrument.

4.4 RELIABILITY TEST

The purpose of this section is to determine the internal consistency of the construct (using Cronbach's alpha) and to describe the average score of the constructs (using mean). Internal reliability was conducted to test whether the indicators that make up the scale or index are consistent (Bryman, 2012:169). Therefore, Cronbach's alpha was used to test the internal reliability. According to Bryman (2012:173), the reliability and validity are related as validity deduces reliability. Guidelines of reliability are as follows:

- Reliability of 0.9 and above shows excellent reliability (Hinton *et al.*, 2014:357).
- Reliability of 0.71 to 0.9 shows high reliability (Hinton *et al.*, 2014:357).
- Reliability of 0.51 to 0.70 shows a moderate reliability (Hinton *et al.*, 2014:357).
- Reliability of 0.50 and below shows lower reliability (Hinton *et al*., 2014:357).

The next subsection discusses descriptive statistics and internal reliability for the variable of the constructs perceived usefulness and perceived ease of use.

4.4.1 Perceived usefulness and perceived ease of use

Table 4.3 below presents the reliability test results for construct perceived usefulness and perceived ease of use.

Table 4.3: Descriptive statistics and internal consistency reliabilities for the technology acceptance model for individual constructs.

Constructs	Mean	SD*	Cronbach's Alpha
Perceived usefulness	3.95	0.540	0.840
Perceived ease of use	3.74	0.679	0.897

*Note: SD refers to standard deviation

Source: SPSS

The constructs perceived usefulness and perceived ease of use show the Cronbach's alpha of above 0.80, which is above the threshold of 0.70 and therefore were considered highly reliable. All the items were retained no items were very low. The overall mean for perceived usefulness (mean=3.74;) and perceived ease of use (mean=3.95; SD=0.674) was above 3.5. This indicates that the respondents' perception about usefulness of e-banking is high, implying that e-banking satisfy the needs of customers and they perceive it to be easy to use. Therefore, commercial banks should capitalise in the perception of usefulness by making e-banking services beneficial to its customers. The overall mean for perceived ease of use indicates that the respondents' perception on the easiness of e-banking is high; implying that e-banking is easy to use. As a result, commercial banks should capitalise in making e-banking features easy to use and access. The next subsection discusses descriptive statistics and internal reliability for the variables of perceived risk theory.

4.4.2 Perceived security risk, privacy risk, performance risk, financial risk and social risk

Table 4.4 below presents the reliability, mean and standard deviation for the perceived risk dimensions.

Table 4.4: Descriptive statistics and internal consistency reliability for the perceived risk dimensions for individual constructs

Constructs	Mean	SD*	Cronbach's Alpha
Security Risk	3.69	0.764	0.909
Privacy risk	3.74	0.781	0.904
Performance risk	3.64	0.705	0.897
Financial risk	3.74	0.679	0.920
Social risk	3.63	0.855	0.890

*Note: SD refers to standard deviation

Source: SPSS

The Cronbach's alpha for all constructs is between 0.8 and 0.90, and the reliability is therefore, considered high because it is above the threshold of 0.70. All the items per construct were retained as none of them had a value that is very low. The next paragraph discusses the mean for security risk.

The overall mean of security risk (mean=3.69) was above 3.5, indicating that the respondents' perception about security risk is high. This implies that the respondents agree that the vulnerability and uncertainties of e-banking may cause loss. Commercial banks must find a way of mitigating the security risks associated with e-banking in order to increase trust of e-banking on users and non-users. Moreover, they must also teach their customers about the preventative measures that can prevent them from being the victims of e-banking. They also must inform them of all security measures that can be taken to prevent fraud. The results are in contrast with that of Masinge (2010:74) and Hossanudin (2012:65), where the respondents' perception on security risk was neutral. The next paragraph discusses the mean for privacy risk.

In terms of privacy risk, the overall mean (mean=3.74) was above 3.5, indicating that the respondents were in agreement with the privacy risk associated with e-banking. It can be concluded that the respondents believe that unauthorised third parties may access their personal and private information when using e-banking. Commercial banks must improve their security to prevent personal information of their customers from being stolen. The next paragraph discusses the mean for performance risk.

In terms of performance risk, the overall mean (mean=3.64) was above 3.5, indicating that the respondents are in agreement with the performance risk associated with e-banking. The results suggest that the respondents agree that e-banking may not perform well owing to shortages and malfunctions of e-banking systems that might potentially lead to monetary loss.

The results of this study are in contrast with the results of Masinge (2010:71) where the respondents were neutral about how they felt about the performance risk associated with e-banking. Commercial banks must also improve the efficiency of their e-banking system so that it can function very well. The next paragraph discusses the mean for financial risk.

In terms of financial risk, the overall mean (mean=3.74) was above 3.5, indicating that the respondents agree with the financial risk associated with e-banking. This implies that the respondents believe that they may lose their money owing to error or misuse of their bank accounts. The next paragraph discusses the mean for social risk.

In terms of social risk, the overall mean (mean=3.63) was above 3.5, indicating that the respondents are in agreement with perceived social risks associated with e-banking. This implies that the respondents are concerned about the social pressure from family, friends and colleagues if they lose money using e-banking. The next subsection discusses descriptive statistics and internal reliability for the attitude towards and intention to adopt e-banking.

4.4.3 Attitude towards and Intention to adopt e-banking

As indicated in Table 4.5, the reliability of attitude towards e-banking and intention to adopt e-banking is high.

Table 4.5: Descriptive statistics and internal consistency reliability for the perceived risk dimensions for individual constructs

Constructs	Mean	SD*	Cronbach's Alpha
Attitude	3.82	0.611	0.908
Intention	3.95	0.605	0.892
Actual usage	2.959	0.669	0.826

*Note: SD refers to standard deviation

Source: SPSS

This was indicated by the Cronbach's alpha of above 0.70. The overall mean value for attitude was greater than 3.5, indicating that the respondents' have favourable attitude towards e-banking. In terms of intention to adopt e-banking, the overall mean value was greater than 3.5, which indicates that the respondents' intention towards adoption of e-banking is positive. This implies that the respondents are willing to use e-banking in future. Therefore, it can be concluded that the SMMEs in the CTMM are willing to use e-banking. However, their perception regarding attitude towards e-banking is higher than that of intention to adopt e-

banking. The results are consistent with that of Maduku (2011:138). However, in Maduku's study, the overall mean value for intention to adopt e-banking was higher than that of attitude towards e-banking. The reason might be that SMMEs lack information regarding e-banking. Banks must provide their customers with necessary information regarding e-banking. The next section discusses validity.

4.5 VALIDITY OF INSTRUMENT USING EXPLORATORY FACTOR ANALYSIS ON ISSUES OF E-BANKING

Exploratory factory analysis was used to summarise data so that relationships and patterns can be easily interpreted and understood. It was used to determine whether the variables on banking information were highly correlated. The next subsection discusses factor analysis on the use of e-banking.

4.5.1 Factor analysis on the use of e-banking

The principal component analysis with a Varimax rotation was done on the dimension "*use of e-banking*". The KMO gave a value of 0.634, indicating that the correlations were adequate for factor analysis. The Bartlett's test of Sphericity was significant as supported by a chi-square value of 689.087 with a p-value less than 0.01. Since the p-value was less than 0.001, the null hypothesis of lack of sufficient correlations was rejected and it was concluded that the correlations were sufficient for factor analysis. Therefore, the results looked good for factor analysis. All the communalities were above 0.5. The factor solution resulted in three factors and the factor solution accounted for 74.7% of the total variance (see Appendix G) for more information). According to Pallant (2013), it was a robust solution since the factor solution accounted for more than 50% of the total variance. The factor loadings show this construct has been reduced to three factors, the first one relating to business transactions, the second one to account information and the last to one to payments. All constructs had an eigenvalue of more than one. The factor solution is shown in Table 4.6 below.

Table 4.6: Factor solution on use of e-banking services

Factor Label	Statements	Loadings	Total variance explained as %
Factor 1:	Q9.1g) view loans	0.956	30.36
Business	Q9.1h) apply for loan	0.928	
transactios	Q9.1f) trade internationally	0.814	
	Q9.1j) set up debit order	0.657	
Factor 2:	Q9.1b) get details of accounts	0.931	28.84
Account	Q9.1c) get account statement	0.900	
information	Q9.1a) view balances	0.804	
Factor3:	Q9.1d) transfer funds	0.805	19.53
Payments	Q9.1i) buy data bundles or airtime	0.748	
	Q9.1e) pay bills	0.745	

The next subsection discusses the factor loading for factors hindering adoption and usage of e-banking.

4.5.2 Factor analysis on factors hindering adoption and usage of e-banking

The principal component analysis method resulted in a KMO measure of sampling adequacy of 0.912, indicating that the correlations were adequate for factor analysis. The Bartlett's Test of Sphericity was significant as evidenced by a chi-square value of 953.386 with a p-value less than 0.001 leading to the rejection of the null hypothesis of lack of sufficient correlations. Evidently, this indicates that there is sufficient correlation and the results looked good for factor analysis. Most of the communalities were above 0.6 (for more information see Appendix G). The solution resulted in a one-factor solution, and it accounted for 63.2% of the total variance and therefore the solution is a robust solution as proposed by Pallant (2013). All the items were highly correlated and the factor was named "factors hindering adoption and usage of e-banking". These items describe factors preventing adoption and utilisation of e-banking. Table 4.7 depicts the factor solution.

Table 4.7: Factor solution on factors hindering adoption and usage of e-banking

Factor 1: Factors hindering adoption and usage of e-banking	**Statements**	**Loadings**	**Total variance explained as %**
	Q9.4f) Lack of instant problem solving in case of a problem occurrence.	0.913	63.22
	Q9.4g) Cell phone's screen size is too small.	0.880	
	Q9.4e) Pages on my cell phone do not load quickly.	0.878	
	Q9.4h) Information is not detailed enough.	0.873	
	Q9.4c) Lack of receipt as a proof of payment when using cell phone banking.	0.815	
	Q9.4b) Cost of data bundles is too high.	0.746	
	Q9.4i) I do not have any limitations.	0.694	
	Q9.4d) Lack of knowledge about e-banking usage.	0.692	
	Q9.4a) Lack of trust in e-banking.	0.605	

Source: SPSS

The next subsection discusses the factor loading for the construct e-banking experience.

4.5.3 Factor analysis on e-banking experience

The results for factor solution of the constructs e-banking experience are depicted in Table 4.8 below.

Table 4.8: Factor solution on e-banking experience

Factor Label	Statements	Loadings	Total variance explained as %
Factor 1: Loan application	Q9.5g) When I apply for a loan using e-banking it does not take time for it to be approved.	0.927	27.13
	Q9.5f) It is quick to apply for a loan using e-banking.	0.898	
	Q9.5b) - When using e-banking, I receive error messages when browser attempts to establish the connection.	0.960	
	Q9.5a) When using e-banking, I experience problems.	0.940	
Factor 2: Usage problems	Q9.5b) - When using e-banking, I receive error messages when browser attempts to establish the connection.	0.960	26.82
	Q9.5a) When using e-banking, I experience problems.	0.940	
Factor 3: Logging questions	Q9.5c) When I log questions or problems during internet banking sessions, they are resolved quickly.	0.824	23.10
	Q9.5d) When I log questions or problems during internet banking sessions, they are resolved accurately.	0.764	
	Q9.5h) With e-banking I am able to do anything that I need without visiting my bank.	0.590	

Source: SPSS

The factor solution resulted in the item, "*When using e-banking, it is difficult to put information for typing*" being dropped from the analysis since it had an insignificant loading. The KMO measure of sampling adequacy had a value of 0.535 indicating that the correlations were adequate for factor analysis. The Bartlett's Test of Sphericity had a p-value less than 0.001 and therefore there was sufficient correlations between the items. The results look good for factor analysis. The communalities were all above 0.5. A three-factor solution was obtained and it accounted for 77.1% of the total variance and therefore the solution was robust. Table 4.8 gives the factor solution. The first factor relates to application of loan accounts, had an

eigenvalue of 1.90 and accounted for 27.1% of the total variance. The second factor consisted of two items and it had an eigenvalue of 1.88 and it accounted for 26.8% of the total variation. The factor was named "usage problems" since it had aspects dealing with problems encountered while using e-banking. The third factor accounted for 23.1% of the total variation and had an eigenvalue of 1.62. It had three items that involved issues when logging in e-banking and it was called "logging questions". The items involved how issues on logging-in problems are resolved quickly and accurately. See Appendix G for more information. The next subsection discusses the factor loadings for usability of e-banking.

4.5.4 Factor analysis on usability of e-banking

In terms of the dimension usability of e-banking, the item, "*E-banking is flexible*" was dropped since it was loading on two factors. The KMO gave a value of 0.804, indicating that the correlations were adequate for factor analysis. Against this background, the Bartlett's test of Sphericity was significant with a p-value less than 0.001, leading to the rejection of the null hypothesis of lack of sufficient correlations. This indicates that the correlations were sufficient to proceed with factor analysis. All the communalities were above 0.6. A two factor solution was obtained which accounted for 71.9% of the total variance and therefore the solution was robust (see Appendix G). The factor solution produced two factors. The first factor accounted for 38.4% of the total variance with an eigenvalue of 3.08. It was named efficiency since it had aspects relating to efficiency of e-banking. The second factor accounted for 33.4% of the total variance with an eigenvalue of 2.67 and was named "communication effectiveness" since it had items relating to notifications for e-banking and language used on e-banking. The results are depicted in Table 4.9 below.

Table 4.9: Factor loadings for usability of e-banking

Factor Label	Statements	Loadings	Total variance explained as %
Factor 1: Efficiency	Q9.6a) Error messages tell me where the problem is.	0.883	38.4
	Q9.6d) The help function of e-banking is efficient.	0.789	
	Q9.6f) It can do what I intend to do.	0.736	
	Q9.6c) E-banking error messages are instructive.	0.725	

Factor Label	Statements	Loadings	Total variance explained as %
	Q9.6b) It was easy to download the e-banking app.	0.675	
Factor 2: Communication effectiveness	Q9.6h) - The bank always notifies me about risks of using e-banking.	0.861	33.4
	Q9.6i) The language used on the website is clear and understandable.	0.851	
	Q9.6g) There is an option for choosing a preferred language.	0.713	

Source: SPSS

The next subsection discusses the factor loadings for perceived usefulness and ease of use.

4.5.5 Factor analysis on perceived usefulness and ease of use

Exploratory factor analysis was done to determine whether the dimension "perceived usefulness" and "perceived ease of use" can be grouped into their respective dimensions. This was to determine the validity of the data to ensure whether the dimension were measuring what they should actually measure. The item "*E-banking is accessible from anywhere*" was dropped from the analysis owing to the fact that it was loading on two factors, that is, there was cross loading. The KMO measure of sampling adequacy resulted in a value of 0.861, indicating that the correlations were adequate for factor analysis. The Bartlett's Test of Sphericity had a chi-square value of 869.537 with a p-value less than 0.001 leading to the rejection of the null hypothesis of lack of sufficient correlations. Therefore, there is sufficient correlation and the results look good for factor analysis. All the communalities were above 0.5. Three factors were obtained which accounted for 69.1% of the total variation and the solution was robust. All the issues on perceived ease of use were grouped into one factor which accounted for 33.2% of the total variation and it had an eigenvalue of 3.98 (see Table 4.10 and Appendix G). The factor was named "perceived ease of use". The next paragraph discusses the factor solution for "perceived usefulness".

Perceived usefulness items were grouped into two factors. Factor two with an eigenvalue of 2.67 accounting for 22.25 of the total variance had issues relating to usefulness and advantages of e-banking. The factor three with an eigenvalue of 1.65 accounting for 13.7%

had issues relating to the efficiency of e-banking. The factor solution is shown in Table 4.10 below.

Table 4.10: Factor loadings for perceived usefulness and perceived ease of use

Factor Label	Statements	Loadings	Variance explained as %
Factor 1: Perceived ease of use	Q11c) Interaction with e-banking does not require a lot of mental effort.	0.810	33.20
	Q11e) I can learn to use e-banking without getting vocational training.	0.804	
	Q11d) It is easy to become skilful in using e-banking without getting customer support.	0.797	
	Q11a) E-banking is clear and understandable.	0.791	
	Q11b) It is easy to use e-banking to accomplish my banking tasks.	0.786	
	Q11f) E-banking services are user friendly.	0.756	
Factor 2: Perceived usefulness_1	Q10d) - E-banking increases my productivity by saving time .	0.838	22.21
	Q10f) E-banking enables me to manage my financial resources more effectively.	0.787	
	Q10e) E-banking enables me to accomplish my tasks more quickly.	0.741	
	Q10g) E-banking allows me to manage banking activities more efficiently.	0.655	
Factor 3: Perceived usefulness_2	Q10a) E-banking is cost effective (lower transaction and transport costs).	0.904	13.73
	Q10b) E-banking is accessible at anytime.	0.791	

Source: SPSS

The next subsection discusses the factor loadings for all perceived risk dimensions.

4.5.6 Factor analysis on perceived risks

The principal component analysis was done on all items on perceived risks. This was done to determine whether the factors can be grouped into security risk, privacy risk, performance risk, financial risk, and social risk. There were 29 items measuring the aspect on perceived risks. The data were appropriate for factor analysis since the Bartlett's Test of Sphericity gave a chi-square value of 3635.599 with a p-value of less than 0.001 indicating sufficient correlations. The KMO measure of sampling adequacy was 0.912, exceeding the recommended value of 0.5 (see Appendix G). The principal component analysis revealed a four-factor solution which accounted for 67.5% of the total variation and therefore the factor solution was robust as proposed by Pallant (2013) (see Appendix G for more information). The perceived risk construct consisted of five dimensions of risk (security, privacy, performance, financial and social risk) which were reduced to four constructs. The next paragraph discusses the factor loading for factor 1.

Two factors which are security and privacy risk emerged as a single factor (factor 1). Factor 1 consisted of all the items on security and privacy risk and therefore it was named "security and privacy risks". The eigenvalue was 6.54, accounting for 22.5% of the total variation. The next paragraph discusses the factor loading for factor 2.

Factor 2 was named "financial risks" since it consisted of all the items on financial risk. The eigenvalue was 5.17 and it accounted for 17.8% of the total variation. The next paragraph discusses the factor loading for factor 3.

Factor 3 was named "performance risks" since it consisted of all the items on performance risk. The eigenvalue was 4.28 and it accounted for 14.8% of the total variation. The next paragraph discusses the factor loading for factor 4.

Factor 4 was all the items on social risk and they accounted for 12.4% of the total variation with an eigenvalue of 3.58. The next paragraph discusses the conclusions of perceived risk dimensions.

It can be noted that all the perceived risks were factored into their respective dimensions except security and privacy risks that were combined. Table 4.11 shows the factor loading on each of the factors.

Table 4.11: Factor loadings for perceived risk dimensions

Factor Label	Statements	Loadings	Variance explained as %
Factor 1: Security and privacy risk	Q12.1c) Fake e-banking web servers may be shown online.	0.815	22.5%
	Q12.1b) I do not feel secure sending personal information through e-banking.	0.760	
	Q12.1d) Because of the vulnerability of e-banking, my account may be hacked.	0.746	
	Q12.1a) I am worried about using e-banking because other people may be able to access my account.	0.727	
	Q12.1f) Due to fraudulent SIM-swap activities, criminals may gain access to my account.	0.710	
	Q12.2c) Personal information may be stolen by others when using e-banking.	0.703	
	Q12.2b) E-banking cannot keep my personal data private.	0.670	
	Q12.1e) If I lose my cell phone or laptop; criminals may be able to crack into my e-banking account.	0.667	
	Q12.2a) A hacker may hack into my private information when using e-banking.	0.655	

Factor Label	Statements	Loadings	Variance explained as %
	Q12.2d) I do not feel totally secure by providing personal privacy information through e-banking.	0.650	
	Q12.2e) If I lose my phone or laptop; criminals may crack into my e-banking information.	0.595	
Factor 2: Financial risk	Q12.4d) I may lose money through fake e-banking web servers.	0.778	17.8%
	Q12.4a) I am afraid that I will lose money due to careless mistakes such as wrong input of account number.	0.764	
	Q12.4c) When transaction errors occur, I worry that I may not get a refund from the bank.	0.744	
	Q12.4e) - I may lose money due to hackers, hacking my account.	0.743	
	Q12.4b) I am afraid that if I put wrong amount of money I will lose my money.	0.699	
	Q12.4f) Due to fraudulent SIM-swap activities, mobile network operators will claim no liability to my financial loss.	0.693	
	Q12.4g) I worry that commercial banks will not accept liability for any loss occurred due to fraudulent SIM-swap activities.	0.582	
	Q12.3f) Due to high volume transactions on the bank's system, I am afraid my creditors will penalise me if my payments are delayed.	0.536	

Factor Label	Statements	Loadings	Variance explained as %
Factor 3: Performance risk	Q12.3c) - I am afraid that the e-banking system may break down while I conduct banking transactions.	0.861	14.8
	Q12.3d) E-banking may not perform well because of slow speed.	0.802	
	Q12.3e) Because of slow speed; e-banking may process payments incorrectly.	0.660	
	Q12.3a) I am afraid of pressing the wrong button, when doing transactions on e-banking.	0.647	
	Q12.3g) I am concerned about the time it takes for the money to reflect into beneficiary's account.	0.611	
	Q12.3b) E-banking server may not perform well or process transactions incorrectly.	0.549	
Factor 4: Social risk	Q12.5c) By using e-banking, I am afraid that I will not be able to interact with bank staff.	0.839	12.4
	Q12.5b) When transaction errors occur, I worry that my family, friends, and colleagues would blame me.	0.797	
	Q12.5a) If my bank account encountered fraud or is hacked, I am worried that I would be blamed or laughed at by my family, friends and colleagues.	0.787	
	Q12.5d) E-banking services have reduced our normal interaction with our bank's business account manager.	0.749	

Source: SPSS

The next subsection discusses the factor loading for attitude towards and intention to use e-banking.

4.5.7 Factor analysis on attitude and intention to use e-banking

The principal component analysis was done on the dimension “attitude” and “intention to use e-banking” to determine whether the factors can be grouped into attitude and intention to use e-banking. Accordingly, the data were appropriate for factor analysis since the Bartlett’s Test of Sphericity gave a p-value of less than 0.001 indicating sufficient correlations. The Kaiser-Meyer-Oklin (KMO) measure of sampling adequacy was more than 0.5 as it gave a value of 0.885 (see Appendix G). The principal component analysis revealed a two factor solution which accounted for 65.6% of the total variation and therefore the factor solution was robust as proposed by Pallant (2013). The next paragraph discusses factor solution.

The factor solution loaded the items into two factors that were named “attitude” and “intention to use e-banking”. The first factor had factor loadings that ranged from 0.862 to 0.748. Attitude had an eigenvalue of 4.58 contributing 35.2% of the total variation which is the highest variance in explaining the data set. Intention to use e-banking had an eigenvalue of 3.95 accounting for 30.4% of the total variation. Therefore, the total items accounted for 65.6% of the total variance. The results showed that the exploratory factor analysis verified that the items were measuring the respective dimensions. The information is presented in Table 4.12 below.

Table 4:12: Factor loadings on attitude and intention to use e-banking

Factor Label	Statements	Loadings	Variance explained as %
Factor 1: Attitude towards e-banking	Q13b) Using e-banking services is a good idea; it is quick to do transactions.	0.862	35.2
	Q13d) Using e-banking services is an exciting idea; you can access it at anytime.	0.848	
	Q13c) I like the idea of using e-banking services; it saves time.	0.844	

Factor Label	Statements	Loadings	Variance explained as %
	Q13g). Using e-banking is advantageous as it would increase my chances of getting financial assistant.	0.788	
	Q13a) I feel that using e-banking is pleasant as it has lower bank charges.	0.770	
	Q13e) In my opinion, it is desirable to use e-banking; you can do everything that you want to do without visiting your bank.	0.750	
	Q13f) I think that using e-banking for financial transactions would be a wise idea.	0.748	
Factor 2: Intention to use e-banking	Q14e) - I am willing to use e-banking for handling my banking needs because it is soothing.	0.839	30.4
	Q14b) I would see myself using e-banking for handling my banking transactions.	0.809	
	Q14c) I will use e-banking on regular basis in future.	0.802	
	Q14d). I will strongly recommend others to use online banking.	0.800	
	Q14f) Assuming that I have access to e-banking, I intend to use it for my banking transactions.	0.779	
	Q14a) I am willing to use e-banking for handling my banking needs.	0.779	

Source: SPSS

The next section discusses the results of correlations analysis.

4.6 CORRELATION ANALYSIS

Correlation was performed to determine if the correlation between actual usage, perceived usefulness, perceived ease of use, security risk, privacy risk, performance risk, financial risk, social risk, attitude and intention exist. Correlation yields a single figure (known as coefficient) by examining three aspect of the relationship (De Vos *et al*., 2011:273). First, the "coefficient examines the presence or absence of a correlation (does the relationship exist or is it merely the result of chance?); secondly, the strength of the correlation (if the relationship exist, how strong or weak is it?); and lastly, the direction of the correlation (is it positive or negative?)" (De Vos *et al*., 2011:273). Pearson's coefficient was used to examine the relationship between variables. The Pearson coefficient value is denoted by the letter "r" in this study. The next subsection discusses correlation between variables.

4.6.1 Correlation analysis: perceived usefulness and ease of use, attitude, intenton and actual usage

The results show a significant weak positive correlation between perceived ease of use and actual usage ($r = 0.301$, $p<0.01$) and a significant moderate positive relationship between perceived ease of use and perceived usefulness ($r = 0.525$, $p<0.01$). There is a significant weak and positive correlation between attitude and actual usage ($r = 0.242$, $p<0.01$); attitude and perceived usefulness ($r = 0.191$, $p<0.05$); and attitude and perceived ease of use ($r = 0.300$, $p<0.01$). Also, it shows a significant moderate and positive correlation between intention and perceived usefulness ($r = 0.542$, $p<0.01$); a significant strong and positive correlation between intention and perceived ease of use ($r = 0.654$, $p<0.01$); and a significant weak correlation between intention and attitude ($r = 0.299$, $p<0.01$). The results of this study is consistent with that of Maduku (2013:91). The results implies that the more respondents perceive e-banking to be useful and easy to use, the more they are likely to adopt it. Actual usage correlates with perceive ease of use and attitude towards e-banking (See Table 4.13 below for information).

Table 4.13: Correlation: Relationship between variables

Construct	1	2	3	4	5
Actual usage	1				
Perceived usefulness	0.096	1			
Perceived ease of use	0.301**	0.525**	1		
Attitude towards e-banking	0.242**	0.191*	0.300**	1	
Intention to use e-banking	0.088	0.542**	0.654**	0.299**	1

Source: SPSS

The next subsection discusses the relationship between perceived risk variables.

4.6.2 Correlation: Perceived risk factors

There is a strong and significant negative correlation between security risk and privacy risk ($r = -0.794$, $p<0.01$). A moderate negative and significant correlation between performance risk and security risk ($r = -0.577$, $p<0.01$); and a strong and significant positive correlation between performamce risk and privacy risk ($r = 0.642$, $p<0.01$). There is a moderate and singificant negative correlation between financial risk and security risk ($r= -0.648$, $p<0.01$); and a moderate positive significant correlation between financial risk and privacy risk ($r = 0.671$, $p<0.01$) and financial risk and performance risk ($r= 0.636$, $p<0.01$). Lastly, there is a negative significant and moderate correlation between social risk and security risk ($r = -0.425$, $p<0.01$); weak positive and significant correlation between social risk and privacy risk (0.453, $p<0.01$); while there is a strong positive and significant correlation between social risk and performance risk ($r = 0.616$, $p<0.01$), and between social risk and financial risk ($r = 0.545$, $p<0.01$). The results imply all perceived risk dimensions, except security risk correlates positively with each other; and negatively with security risk. Commercial banks need to find a way of making e-banking a risk free channel. The information is depicted in Table 4.14 below.

Table 4.14: Correlations: Relationship between variables

Construct		1	2	3	4	5
1	Security risk	1				
2	Privacy risk	-0.794**	1			
3	Performance risk	-0.577**	0.642**	1		
4	Financial risk	-0.648**	0.671**	0.636**	1	
5	Social risk	-0.425**	0.453**	0.616**	0.545**	1

Source: SPSS

The next section discusses the results of regression analysis.

4.7 REGRESSION ANALYSIS

The purpose of this section was to determine factors that influence adoption of e-banking. The next subsection discusses the results of multiple regression analysis to determine the actual usage of e-banking.

4.7.1 Multiple regression analysis to determine Actual usage

This section answers the second objective: To determine the influence of intention on actual usage. The model summary shows that the overall multiple regression is insignificant with $p>0.05$ and adjusted R^2 of 5%. The Durbin-Watson value is 1.290. The ANOVA shows that the model is insignificant ($F(1,157)= 0.863$, $p<0.05$). The model summary and the ANOVA implies that the assumption of the multiple regression are not met. Intention has a beta value of 0.08, which indicates a positive but insignificant influence by intention on actual usage. It can be concluded that intention does not influence actual usage of e-banking (See Appendix G for more information). The next subsection discusses the results of multiple regression analysis for intention to adopt e-banking.

4.7.2 Multiple regression analysis to determine intention

This section answers the third objective: To determine the influence of perceived usefulness and attitude towards e-banking on intention to adopt e-banking. Table 4.15, 4.16 and 4.17 present the output from the multiple regression analysis. The overall multiple regression

analysis as shown in the model summary in Table 4.15 below, is significant with p-value of less than 0.05.

Table 4.15: Model summary[b]. Multiple hierarchical regression analysis to determine intention

Model constructs	R	R Square	Adjusted R Square	Std. Error of Estimate	Change Statistics				
					R Square Change	F Change	Df1	Df2	Sig. F Change
1	0.577[a]	0.333	0.325	0.49693	0.333	38.965	2	156	0.000

a. Predictors: (Constant), Perceived usefulness, Attitude

b. Dependent Variable: Intention

Note: Durbin-Watson is 2.030

Source: SPSS

Table 4.16: One-way ANOVA (Intention)

Model		Sum of Squares	df	F	Sig.
1	Regression	19.244	2	38.965	0.000[b]
	Residual	38.522	156		
	Total	57.766	158		

Table 4.17: Co-efficient[a] Intention

Model		Unstandardised Coefficients		Standardised Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.959	0.351		2.731	0.007
	Attitude	0.201	0.066	0.203	3.045	0.003
	Perceived Usefulness	0.563	0.075	0.503	7.551	0.000

a. Dependent Variable: Intention

Source: SPSS

Durbin-Watson shows a value of 2.030 which is acceptable as it is in line with threshold of between 1.5 and 2.5, indicating that the residual terms are correlated and highly independent. The adjusted R^2 indicates that 33.3% of the variance of intention is explained by perceived usefulness and attitude towards e-banking. The ANOVA in Table 4.16 shows that the model as a whole is significant ($F(2, 156) = 38.965$, $p<0.05$). Table 4.17 shows that perceived usefulness is the most important predictor of intention to use e-banking, with a coefficient beta of 0.503; followed by attitude with a coefficient beta of 0.203. The results support the TAM

theory. It can be concluded that perceived usefulness directly influences intention to adopt e-banking; and it has a significant positive influence on intention to adopt e-banking. This suggests that if customers feel that their performance will improve as a result of using e-banking, they will be more willing to use it. The results also indicate a significant positive influence of attitude on intention to use e-banking. This implies that the customers' assessment behaviour towards e-banking will develop their intention to use e-banking. The following paragraph discusses the results of the empirical research conducted by other researchers.

The results of the study are consistent with the results of other studies conducted locally and internationally (Maduku, 2013:93; Lee, 2009:138; Al-Smadi, 2012:302; Nasri & Charfeddine, 2012:08; Lin *et al*., 2015:281; Nasir *et al*., 2015:466; & Alalwan *et al.*, 2016:128). The study of Mazhar *et al*., (2014) was conducted in Pakistan; of Nasri and Charfeddine (2012) in Tunisia; of Al-Smadi (2012) in Jordan; of Lin *et al*. (2015) in Vietnam; Lee (2009) in Taiwan; of Nasir *et al*., 2015) in United Kingdom; and of Maduku (2011) in South Africa. Commercial banks must ensure that e-banking services address the needs of their customers. This will inevitably increase the usage rate of e-banking. Commercial banks need to educate their SMMEs on the benefits of e-banking in order to increase the adoption and usage rate. They must also teach them on how e-banking can help grow their businesses. The next subsection discusses the results of multiple regression analysis to determine perceived usefulness.

4.7.3 Regression analysis to determine perceived usefulness

This section answers the fourth objective: To determine the influence of perceived ease of use on perceived usefulness. Table 4.18, 4.19 and 4.20 present the output from the multiple regression analysis. The overall multiple regression analysis as shown in the model summary in Table 4.18 below is significant with p-value of less than 0.05.

Table 4.18: Model Summary[b]: Multiple regression to determine perceived usefulness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.525[a]	0.276	0.271	0.46227	0.276	59.366	1	156	0.000	1.969

a. Predictors: (Constant), Perceived Ease of Use

b. Dependent Variable: Perceived Usefulness

Source: SPSS

Table 4.19: One-way ANOVA (Perceived usefulness)

Model		Sum of Squares	df	F	Sig.
1	Regression	12.686	1	59.366	0.000[b]
	Residual	33.336	156		
	Total	46.022	157		

Source: SPSS

Table 4.20: Coefficients[a] (Perceived usefulness)

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.387	0.206		11.574	0.000
	Perceived Ease of Use	0.418	0.054	0.525	7.705	0.000

a. Dependent Variable: Perceived Usefulness

Source: SPSS

Durbin-Watson shows a value of 1.969 which is acceptable as it is in line with threshold of between 1.5 and 2.5; indicating that the residual terms are correlated and highly independent. The R^2 indicates that 27.6% of the variance of intention towards e-banking is explained by perceived usefulness and attitude. The ANOVA in Table 4.19 shows that the model as a whole is significant ($F(1, 156) = 59.366$, $p<0.05$). Moreover, perceived ease of use is the most important predictor of perceived usefulness, with a coefficient beta of 0.525 (see Table 4.20). The results support TAM theory in that perceived ease of use has a direct impact on perceived usefulness and indirectly influence intention to adopt e-banking through perceived usefulness. The results are consistent with that of Maduku; Lee (2009:138); Lin *et al.*, (2015:281); and Alalwan *et al.*, (2016:1287). The researchers have found perceived ease of use to have a direct impact on perceived usefulness and indirect impact on intention to adopt e-banking. The

next subsection discusses the results of stepwise regression analysis to determine attitude towards e-banking.

4.7.4 Stepwise regression analysis to determine attitude

The aim of this section was to answer the fifth objective. Stepwise regression was utilised to determine attitude, as with multiple regression all constructs were insignificant. Table 4.21, 4.22, and 4.23 present the output from the multiple regression analysis.

Table 4.21: Model Summary[c] (Attitude)

Model constructs	R	R Square	Adjusted R Square	Std. Error of Estimate	Change Statistics				
					R Square Change	F Change	Df1	Df2	Sig. F Change
1	0.300[a]	0.090	0.084	0.58592	0.090	15.481	1	156	0.000
2	0.404[b]	0.163	0.152	0.56380	0.073	13.483	1	156	0.000

a. Predictors: (Constant), Perceived Ease of Use

b. Predictors: (Constant), Perceived Ease of Use, Security risk

c. Dependent Variable: Attitude

Note: Durbin-Watson 1.359

Source: SPSS

Table 4.22: One-way ANOVA[a] (Attitude)

Model		Sum of Squares	df	F	Sig.
1	Regression	5.315	1	15.481	0.000[b]
	Residual	53.555	156		
	Total	58.870	157		
2	Regression	9.600	2	15.101	0.000[c]
	Residual	49.269	155		
	Total	58.870	157		

Table 4.23: Coefficients[a] (Attitude)

Model	constructs	Unstandardised Coefficients B	Unstandardised Coefficients Std. Error	Standardised Coefficients Beta	t	Sig.
1	(Constant)	2.804	0.261		10.727	0.000
	Perceived Ease Use	0.271	0.069	0.300	3.935	0.000
2	(Constant)	3.330	0.290		11.503	0.000
	Perceived Ease Use	0.264	0.066	0.293	3.984	0.000
	Security risk	-0.216	0.059	-0.270	-3.672	0.000

Source: SPSS

Stepwise regression has produced two models. Model two (highlighted) was chosen as it had more variables compared to model one. The model summary in Table 4.21 below shows that the overall mutiple regression is significant with a p-value of less than 0.05 (p=0.000). The adjusted R^2 value indicates that 16.3% of the variation in the attitude is explained by perceived usefulness and security risk. Furthermore, the Durbin-Watson has a value of 1.359 (which is not bad as it is above 1 and close to 1.5) indicating that residual terms are correlated and independent. The ANOVA in Table 4.22 shows that the model as a whole is significant ($F(2, 155) = 15.101$, $p<0.05$). The following paragraph discusses the beta values for perceived usefulness and perceived ease of use.

Peceived usefulness had a positive but insignificant influence on attitude ($\beta=0.061$, $p>0.05$). This does not support TAM. The results imply that the respondents' attitude towards e-banking is not influenced by the usefulness of e-banking. According to the theory, perceived usefulness is expected to have significant positive influence on attitude towards e-banking. The results are also inconsistent with the results of other studies (Maduku, 2011; Lee, 2009:138; Al-Smadi, 2012:302; Nasri & Charfeddine, 2012:08; Maduku, 2013:93, Lin, *et al*., 2015:281; Mazhar *et al*., 2014:491; & Alwalan *et al.,* 2016:128). The results of these studies reveal that perceived usefulness has a significant positive influence on attitude towards e-banking. According to Nasir *et al*. (2015:466), young professionals understand the concept of e-banking and give higher value to the technology-related factors. However, the results on this study are consistent with that of Silva Biddara, Muñoz-Leiva and Liébana-Cabanillas (2013) conducted in China, where perceived usefulness was insignificant. The reason was that perceived usefulness loses power in explaining the adoption when dealing with a group of users relatively accustomed to electronic applications (Silva Bidarra et al., 2013:20). The reason for the insignificance of perceived usefulness in this study is that in South Africa is e-banking is still

in its infancy (Sarlak & Hastiani, 2011:07). The next paragraph discusses perceived ease of use.

Perceived ease of use is the most important predictor of attitude with a coefficient beta value of 0.293 and a p-value of less than 0.05. This suggests perceived ease of use has a significant positive influence on attitude towards e-banking. The results support theory (TAM) and are in line with the results of Maduku (2011); Lee (2009:138); Al-Smadi, 2012:302; Nasri and Charfeddine (2012:08); Maduku (2013:93), Lin *et al.* (2015:281); Alwalan *et al*. (2016:128). However, in the results of the above mentioned studies, perceived ease of use was not the most important predictor of attitude. Moreover, Mazhar *et al.* (2014:491) found no relationship between attitude towards e-banking and perceived ease of use. The researchers' reason was that perceived ease of use is important at the initial stage and once a person is skillful in using e-banking the significancy of perceived ease of use disappears (Mazhar *et al*., 2014:391). It can be concluded that if customers perceive e-banking as easy to use to them, their attitude towards it will be positive. The next paragraph discusses the coefficient beta value for security risk.

Security risk had a coefficient beta value of -0.270 and a p-value of less than 0.05. This indicates that there is a significant negative and weak relationship between security and attitude towards e-banking. The results suggest that security risk has a significant negative impact on attitude towards e-banking. Therefore, the results of this study are in support of the perceived risk theory and consistent with the findings of Nasir *et al*. (2015:466) and Lee (2009:138). The researchers observed a significant negative impact of security risk on attitude towards e-banking. Security risk also emerges as the most important inhibitor to adoption of e-banking. Nasir *et al.* (2015:466) and Lee (2009:138) also observed security risk to be the most important inhibitator for adoption of e-banking.

The results imply that the respondents' concerns about potential uncertainties or loss caused by the vulnerability of e-banking will lead to a negative attitude towards e-banking. It is inevitable that negative attitude towards e-banking will result in non-adoption. It is evident from this results that customers do not feel safe when using e-banking. Al-Smadi (2012:302) argues that customers are safety seekers; they do not want to associate themselves with risky acivities. According to Nasir *et al*. (2015:466), people with lower level of education have little knowledge about how to protect their personal and privacy information and will be more concerned about e-banking risks. Security of the products and services is regarded as the fundamental element of trust (SANS Institute, 2012:23). Therefore, commerical banks should find a way of improving the security of e-banking in order to maintain confidence of their

customers in e-banking. Although, commercial banks have taken steps (such as strong authentication and encryption) to prevent fraud; they also need to educate their customers on how to use those preventative measures, and on applications to detect malware. This will enable commercial banks to build their customers' confindence and also increase the adoption and usage of e-banking. The next section discusses a coefficient beta value for privacy risk.

Privacy risk, financial risk, performance risk, and social risk were excluded as they were insignificant (see Appendix G). The results show that privacy risk has a negative but insignificant impact on attitude (β= -0.017, $p>0.05$). The results are not in line with theory. This suggests that the respondents'concerns about their personal and private information being revealed owing to unauthorised access by third parties, does not influence their attitude towards e-banking. The reason for the inconsistency with theory is owing to the fact that e-banking is still in its infancy in South Africa (Rensleigh, 2010) and the fact that majority of the respondents had a secondary education. Evidently, the respondents do not understand the concept of e-banking and privacy risks associated with e-banking. The next paragraph discusses coefficient beta value for performance risk.

In terms of performance risk, the results show a positive insignificant impact on attitude (β= 0.129, $p>0.05$). The results are not inline with perceived risk theory (PRT). It can be concluded that there is no relationship between attitude towards e-banking and performance risk. This implies that monetary losses incurred owing to shortages and malfuctions of e-banking do not influence the respondents' attitude towards e-banking. The reason is owing to the fact that e-banking in South Africa is still emerging, the respondents do not understand the performance risks associated with e-banking. Therefore, perceived risk associated with e-banking would always show a negative relationship; this indicates a lack of knowledge and understanding on e-banking and its risks. Commercial banks should educate their customers about the risks associated with e-banking and the preventative measures that can deter e-banking users from becoming victims of e-banking fraud. This will ensure a better understanding of e-banking and its risks; and consequently increase confidence and the adoption of e-banking. The next paragraph discusses coefficient beta value for financial risk.

In terms of financial risk, the results show a positive and insignificant impact on attitude towards e-banking (β= 0.129, $r>0.05$). The result implies that the respondents' concerns about losing money owing to transaction errors or misuse of bank account does not influence their attitude towards e-banking. This does not support theory (PRT). This is because of the infancy of e-banking in South Africa and level of education of the respondents. As a result, the

concepts of e-banking and the financial risks associated with it are not well understood. The next paragraph discusses coefficient beta value for social risk.

In terms of social risk, the results show a positive insignificant influence on attitude (β= 0.077, p>0.05). It can be concluded that social risk had no significant impact on attitude towards e-banking. The results imply that the respondents are not concerned about social pressure from family, friends and colleagues with regard to e-banking. The results are not in line with theory (PRT). However, the results are consistent with that of other studies (Nasir *et al.*, 2015:466, Lee, 2009:138; Hanafizadeh & Khedmatgozar, 2012:166). The above-mentioned studies observed an insignificant impact of social risk on attitude towards e-banking. The reason is that the "decision to use e-banking is voluntary rather than mandatory" (Lee, 2009:138); and also social norms are expected to predict attitude towards e-banking in a mandatory usage-context and have a slight impact in a voluntary-usage context (Lee, 2009:135). The next section gives the summary of the results.

4.8 SUMMARY OF THE RESULTS

The demographic information shows that the majority of the respondents were males; are between the age of 30 to 39 years; majority had secondary education; majority of the business were classified as SMMEs; majority of the business fall under wholesale, retail trade, hotel and restaurants; and had been in operation for more than three years. In terms of usage of e-banking, the majority of the respondents indicated the following:

- They use e-banking on a monthly basis and a quarter of the respondents reported that they have never used e-banking.
- They reported that the cost of data bundles, lack of receipt as a proof of payment and knowledge of e-banking and limited information sometimes limit them from adopting and using e-banking.
- They use e-banking services sometimes.

Perceived usefulness and all perceived risks dimension except security risk were excluded from the model because they were insignificant. Therefore, it can be concluded that attitude towards e-banking is explained by perceived ease of use and security risk. According to theory, all aspects of perceived risk are expected to have a significant negative impact on attitude towards e-banking and perceived usefulness and perceived ease of use are expected to have a significant positive impact on attitude towards e-banking. In this study, the results

partly supported theory and the findings of other studies. The reason is that the concept of e-banking in South Africa is still in its infancy. As a result, many people do not understand the benefits of e-banking and the perceived risks associated with it. Therefore, the respondents have little knowledge about how to use and protect their personal and privacy information; hence, perceived ease of use and security risk are significant predictors of attitude. The next section provide the conclusions.

4.9 CONCLUSION

The results of descriptive statistics were discussed and interpreted. The reliability and validity results were discussed and interpreted. And also the correlations and regression analysis results were discussed and interpreted relatively to the objectives of the study. Lastly, the summary of the study was presented. The conclusions and recommendations of the results of this study are discussed in the next chapter.

CHAPTER 5: RECOMMENDATIONS AND CONCLUSIONS

5.1 INTRODUCTION

The purpose of this study was to investigate factors that influence the adoption of e-banking among SMMEs in the CTMM. The conceptualised framework for this study was determined by integrating the TAM and PRT as TAM was unable to address all the research objectives of the study. The variables used in the conceptual framework include perceived usefulness, perceived ease of use, security risk, privacy risk, performance risk, financial risk, social risk, attitude, and intention to adopt e-banking. The aim of this chapter is to summarise the main findings relative to each of the objectives of this study and infer the conclusion about the results. This chapter also indicates recommendations about what needs to be done to encourge adoption and continuous usage of e-banking. Lastly, this chapter proposes future research.

5.2 RESEARCH OBJECTIVES

The primary objective was to investigate factors that influence adoption and usage of e-banking among SMMEs in the CTMM. In order to achieve the primary objective of the study the following secondary objectives were formulated:

- To determine the factors that influence usage of e-banking amongst SMMEs in the CTMM.
- To determine the influence of intention to adopt e-banking on actual usage of e-banking.
- To determine the influence of perceived usefulness and attitude towards e-banking on intention to adopt e-banking.
- To determine the influence of perceived ease of use on perceived usefulness.
- To determine the influence of perceived usefulness, perceived ease of use, security risk, privacy risk, performance risk, financial risk and social risk on attitude towards e-banking.

The next section discusses the summary of the results of usage of e-banking.

5.3 USAGE OF E-BANKING

The purpose of this section was to answer the first objective. The study found that SMMEs sometimes use e-banking to transfer funds, view balances, get account statements, get account details, pay bills, and buy data bundles. However, they rarely use e-banking to trade internationally, set up debit orders, apply for loans and view loans. The study also found that the cost of data bundles, lack of receipt as a proof of payment, small screen size of the cell phone and lack of knowledge sometimes limit SMMEs from using e-banking. Regarding the functionality of e-banking, the study found that e-banking sometimes enable SMMEs to do anything that they need without visiting their banks. However, sometimes they experience problems when using e-banking. In terms of logging problems on e-banking, SMMEs indicated that sometimes they are resolved accurately and quickly. In terms of loan applications via e-banking, the study found that sometimes it is quick for SMMEs to apply for a loan and also sometimes it does not take time for it to be approved. Regarding usability of e-banking, the study found that SMMEs perceive e-banking to be usable. The respondents also voiced out that e-banking is easy to use and they will recommend it to others. However, others voiced that they are willing to use e-banking if its security is guaranteed. The next paragraph draws conclusions about the results.

To conclude on the results, this study found that SMMEs in the CTMM are using e-banking sometimes and also they are not using all the services offered on e-banking. Factors such as lack of knowledge and cost of data bundles are limiting the SMMEs from using e-banking. In addition, it has emerged that security is a key basis for adoption of e-banking. The next section discusses the summary of the results of the relationship between independent and dependent variables. The next section discusses the summary of the results of determination of factors that influence adoption and usage of e-banking.

5.4 DETERMINATION OF FACTORS THAT INFLUENCE ADOPTION AND USAGE OF E-BANKING

The aim of the section was to determine the factors that predict adoption and usage of e-banking. The factors are discussed in the subsections below.

5.4.1 The influence of intention towards e-banking on actual usage.

This subsection addresses the second objective. The results showed that the impact of intention to adopt e-banking on the actual usage of e-banking is insignificant.

From the results it can be concluded that intention to adopt e-banking does not influence the actual usage of e-banking. The actual usage of e-banking can be influenced by other factors such as safety of e-banking and compatibility in using e-banking.

5.4.2 The influence of attitude towards e-banking and perceived usefulness on intention to use e-banking

The purpose of determining the influence of attitude towards e-banking and perceived usefulness on intention to use e-banking was to address the third research objective. The results showed that attitude towards e-banking and perceived usefulness have a significant positive impact on intention to adopt e-banking. Moreover, perceived usefulness has emerged as the most important predictor of intention to adopt e-banking. It is drawn from the results that intention to adopt e-banking among SMMEs in the CTMM is influenced by perceived usefulness and attitude towards e-banking; where perceived usefulness generates the biggest influence. This suggests that customers' intention to adopt e-banking is driven by the benefits they derive from e-banking services.

5.4.3 The of perceived ease of use on perceived usefulness

The aim of the subsection was to address the fourth objective by determining the effect of perceived ease of use on perceived usefulness. The results indicated that perceived ease of use has a significant positive influence on perceived usefulness. The inference from the results is that perceived usefulness on the SMMEs in the CTMM, is influenced by perceived ease of use. The results suggest that perceived ease of use indirectly influence intention to adopt e-banking through perceived usefulness.

5.4.4 The impact of perceived usefulness, perceived ease of use and all perceived risk dimensions on the attitude towards e-banking

The aim of determining the impact of perceived usefulness, perceived ease of use and all perceived dimensions on the attitude towards e-banking was to address the fifth research objective of this study. The results showed a significant positive influence of perceived ease of use (29.3%) on attitude towards e-banking. Security risk was found to have a significant negative influence (-27%) on attitude towards e-banking. Moreover, perceived ease of use emerged as the highest (29.3%) predictor of attitude towards e-banking. All other variables were found to have an insignificant influence on attitude towards e-banking. The conclusion drawn from the results is that attitude towards e-banking on the SMMEs in the CTMM, is

influenced by perceived ease of use and security risk. Where perceived ease of use is the most predictor and motivator to adoption of e-banking, security risk is regarded as a barrier to adoption of e-banking. The next paragraph discusses the overall conclusions of the study.

The results of the study indicate that factors that influence attitude towards e-banking include perceived ease of use and security risk. On the contrary, intention to adopt e-banking is influenced by perceived usefulness and attitude towards e-banking. Attitude towards e-banking has a moderating effect on perceived ease of use and security risk towards intention to adopt e-banking. The final model is depicted in Figure 5.1 below. The dotted line indicates insignificant relationship.

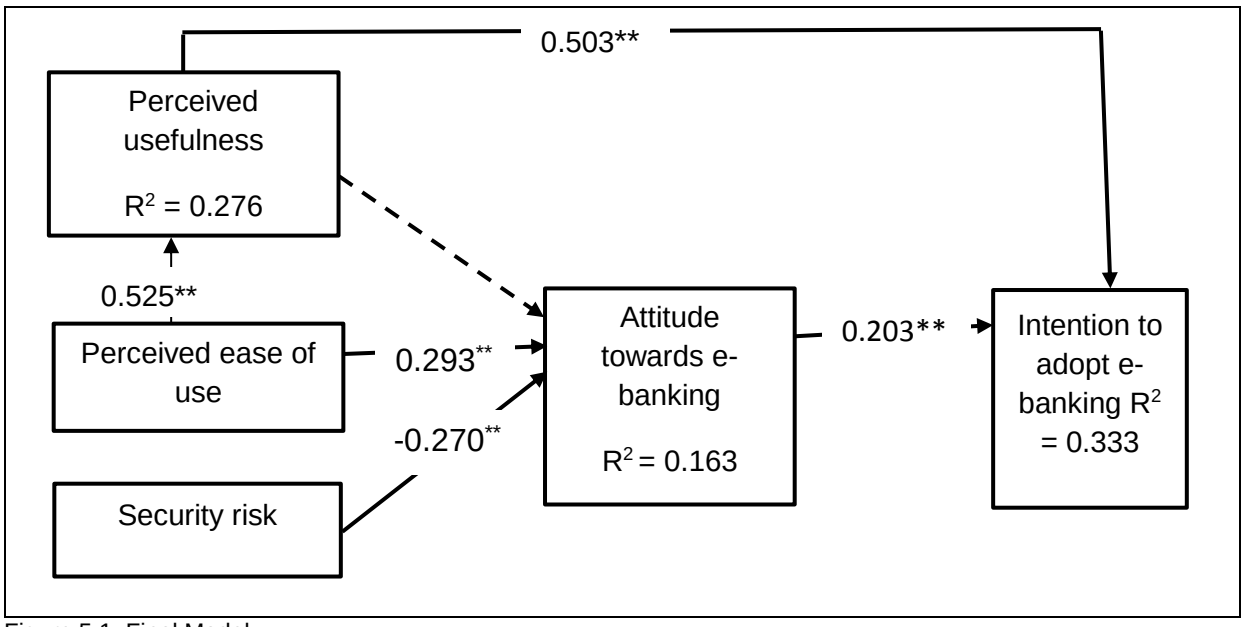

Figure 5.1: Final Model

Source: Own compilation

5.5 RECOMMENDATIONS

As seen from the results of the study, perceived ease of use and perceived usefulness were found to be contributing to attitude towards and intention to adopt e-banking. Commerical banks need to make an effort to develop e-banking that is easy to access and use. They must also make e-banking services more beneficial to customers as this leads to adoption. Although commerical banks are trying to improve and make e-banking easy to use, it is not enough to convience customers owing to lack of knowledge about e-banking. Some are not interested in using it owing to lack of information. To increase adoption rate and continuous usage, commercial banks need to educate their customers about the benefits of e-banking. And also organise hands-on training to educate their customers on how to use e-banking services. In

that way, their customers will be able to realise the user friendliness of e-banking and embrace it.

Understandably, security risk is a key barrier to adoption and continuous usage of e-banking. Commercial banks are also trying effortlessly to inform their customers about e-banking fraud and precautionary measures to prevent it. The solutions for preventing risk associated with e-banking although are there (such as strong authentication and encryption), but the mechanism for informing customers about them, is inefficient. The information is available online and is also cascaded via SMS. However, the information cascaded via cell phones is not detailed enough. Moreover, the online information is available for those who log on their bank's website. Also, it is uncertain whether the information is being used by the banking customers. Therefore, commercial banks need to provide inhouse training for their customers in an effort to educate them about cyberspace attacks and precautionary measures to prevent themselves from such attacks. It is also important that they provide hands-on training to teach their customers how to use different e-banking services. More importantly, commerical banks need to find strategies to prevent e-banking fraud. They need to keep on upgrading their firewalls as criminals will always find a new way of hacking accounts. This will enable commercial banks to build and maintain their customers' trust and confidence on e-banking; and consequently increase its adoption and continuous usage. Policy makers must develop policies that protect banking customers from losing money during e-banking fraud.

The recommendation suggests that education is key to adoption of e-banking. Commercial banks have done everything to make e-banking beneficial, easy to use and safe. What is left for them is to provide face-to-face education to their customers on everything regarding e-banking in order for both parties to reap the fruit of e-banking. The next section discusses limitations of the study.

5.6 LIMITATIONS OF THE STUDY

The study was conducted in the CTMM, and therefore the results of this study cannot be generalised to SMMEs in other provinces or cities. Characteristics of SMMEs can differ province-by-province and within city-to-city. The next section discusses future research.

5.7 FUTURE RESEARCH

The study was conducted in the CTMM which is in the urban area. Another study on e-banking adoption by SMMEs can be conducted in another areas such as rural areas. Most of the studies regarding e-banking are conducted using quantitave research. A qualitative study on e-banking can be conducted where the participants can be able to voice their opinions regarding e-banking. A longitudinal study can be conducted to determine the trends of adoption of e-banking. Another study comparing adoption patterns of e-banking between females and males entrepreneurs maybe conducted. A study investigating the knowledge of banking customers relative to security measures on e-banking fraud could also be conducted. The next section discusses conclusion of this chapter.

5.8 CONCLUSION

This chapter presented summary and conclusions of the study, and recommendations about the results were made to commercial banks. Education emerged as a key in stimulating adoption and continuous usage. Limitations of this study were addressed and the suggestions for future research were made.

REFERENCE LIST

Alalwan, A.A., Dwivedi, Y.K., Rana, N.P. & Williams, M.D. 2016. Consumer adoption of mobile banking in Jordan: Examining the role of usefulness, ease of use, perceived risk and self-efficacy. *Journal of Enterprise Information Management*, 29(1): 118-139.

Al-Fahim, N.H. 2016. An examination factors influencing the intention to adopt internet banking among SMEs in Yemen: Using an extension of the technology acceptance model (TAM). *Journal of Internet Banking and Commerce,* 21(S5): 1-23.

Al-Jabri, I.M. 2015. The intention to use mobile banking: Further evidence from Saudi Arabia. *South African Journal of Business Management*, 46(1): 23-34.

Al-Rfou, A.N. 2013. The usage of internet banking evidence from Jordan. *Asian Economic and Financial Review*, 3(5): 614-623.

Al-Sahouly, I., Rashid, T. & Salford, G.M. 2015. Resurrecting information technology adoption models: a theoretic foundation. *International Journal of Research in Management and Technology*, 5(6): 400-408.

Al-Smadi, M.O. 2012. Factors affecting adoption of electronic banking: An analysis of the perspectives of banks' customers. *International Journal of Business and Social Science*, 3(17): 294-309.

Ameme, B.K. 2015. The impact of customer demographic variables on the adoption and use of internet banking in developing economies. *Journal of Internet Banking and Commerce*, 20(2): 1-28.

Apanasevic, T., Markendahl, J. & Arvidsson, N. 2016. Stakeholders' expectations of mobile payment in retail: Lessons from Sweden. *International Journal of Bank Marketing*, 34(1): 37-61.

Asah, F., Fatoki, O.O. & Rungani, E. 2015. The impact of motivations, personal values and management skills on the performance of SMEs in South Africa. *African Journal of Economic and Management Studies*, 6(3): 308-322.

Awa, H.O., Baridam, D.M. & Nwibere, B.M. 2015. Demographic determinants of electronic commerce (EC) adoption by SMEs: A twist by location factors. *Journal of Enterprise Information Management*, 28(3): 326-345.

Awa H.O.and Ukoha, O. (2012). Integrating TAM and TOE framework and expanding their characteristic constructs for e-commerce adoption by SMEs. *Information Science and IT Education Conference*, 572-588.

Awiagah, R., Kang, J. & Lim, J.I. 2015. Factors affecting e-commerce adoption among SMEs in Ghana. *Information Development*, 32(4): 815-836.

Beck, T., Demirgüç-Kunt, A. & Martinez Peria, M.S. 2008. *Banking financing for SMEs around the world: Drivers, obstacles, business models, and lending practices*. Washington, D.C: World Bank.

Brown, I., Cajee, Z., Davis, D. & Stroebel, S. 2003. Cell phone banking: Predictors of adoption in South Africa-an exploratory study. *International Journal of Information Management,* 23: 381-394.

Bryman, A. 2012. *Social Research Methods*. 4th ed. Oxford.

Bryman, A., Bell, B., Hirschsohn, P., Dos Santos, A., Du Toit, J., Masenge, A., & Wagner, C. 2014. *Research Methodology: Business and Management Contexts*. 3rd Impression. Oxford: University Press Southern Africa.

BusinessDay (BDlive). 2013. *ATMs becoming a 24-hour teller service* [online]. Business Day. Available from: < http://www.bdlive.co.za/business/financial/2013/04/30/atms-becoming-a-24-hour-teller-service>
[Accessed 16 March 2016]

Caniëls, M.C., Lenaerts, H.K. & Gelderman, C.J. 2015. Explaining the internet usage of SMEs: The impact of market orientation, behavioural norms, motivation and technology acceptance. *Internet Research*, 25(3): 358-377.

Cant, M.C. and Wiid, J.A. 2013. Establishing the challenges affecting South African SMEs. *International Business and Economics Research Journal*, 12(6): 707-716.

Cant, M.C., Erdis, C. & Seshapo, C.M. 2014. Business survival: The constraints experienced by South African SMEs in the financial sector. *International Journal of Academic Research in Business and Social Sciences*, 4(10): 565-579.

Casaló, L.V., Flavián, C. & Guinalíu, M. 2008. The role of satisfaction and website usability in developing customer loyalty and positive word-of-mouth in the e-banking services. *International Journal of Bank Marketing*, 26(6): 399-417.

Cecchetti, S.G. and Schoenholtz, K.L. 2015. *Money, Banking, and Financial Markets*. 4th ed. New York: McGraw Hill Education.

Charles, R.O.K., Amankwaa, T. & Owusu, P. 2015. A qualitative approach to examining the challenges of Ghanaian Small and Medium Scale Enterprises (SMEs): The case of new Juaben Municipality. *International Review of Social Sciences and Humanities*, 8(2): 9-19.

Chatzoglou, P. and Chatzoudes, D. 2016. Factors affecting e-business adoption in SMEs: an empirical research. *Journal of Enterprise Information Management*, *29*(3): 327-358.

Chavan, J. 2013. Internet banking–benefits and challenges in an emerging economy. *International Journal of Research in Business Management*, 1(1): 19-26.

Chen, C. 2013. Perceived risk, usage frequency of mobile banking services. *Managing Service Quality: An International Journal*, 23(5): 410-436.Chen, J.K., Windasari, N.A. & Pai, R. 2013. December. Exploring E-readiness on E-commerce adoption of SMEs: Case study South-East Asia. In *Industrial Engineering and Engineering Management (IEEM)*, *2013 IEEE International Conference on, Bangkok Thailand* December 2013. IEEE. 1382-1386.

Cheng, F.F., Liu, T.Y. & Wu, C.S. 2013. Perceived risks and risk reduction strategies in online group-buying. In *diversity, technology, and innovation for operational competitiveness: proceedings of the 2013 International Conference on Technology Innovation and Industrial Management*, *Phuket, Thailand, May 29-31, 2013*. ToKnowPress.

Choeu, T.L. 2013. The adoption of electronic commerce by Small and Medium Enterprises in Pretoria. MBA dissertation. Tshwane University of Technology, Pretoria.

Chong, A.Y. 2013. Mobile commerce usage activities: The roles of demographic and motivation variables. *Technological Forecasting & Social Change*, 80(2013): 1350-1359.

Chuwa, G. 2015. Factors Influencing the Adoption of Internet Banking by Small and Medium Enterprises (SMEs) in Nyamagana District, Mwanza-Tanzania. *European Journal of Business Management*, 7(13): 135-160.

City of Tshwane. Not dated. *About Tshwane* [online]. City of Tshwane. Available from: <http://www.thetshwaneopen.co.za/AboutTshwane/Pages/default.aspx>.
[Accessed 03 November 2015]

City of Tshwane Municipality. Consolidated Annual Report for 2013/14. Volume 1.
Available from:<http://www.google.co.za/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CCEQFjABahUKEwjbquebsfTIAhUBkxQKHc05Ag8&url=http%3A%2F%2Fwww.tshwane.gov.za%2Fsites%2FDepartments%2FFinancial-Services%2FAnnual%2520Report%2520201314%2FFinal%25202013_14%2520Annual%2520report.pdf&usg=AFQjCNGaWY97pmxXsiAcbhaGTBqs_my_7g>
[Accessed 03 November 2015]

ComSCORE. 2012. *1 in 4 internet users access banking sites globally* [online].
Available from: <http://www.comscore.com/Insights/Data-Mine/1-in-4-Internet-Users-Access-Banking-Sites-Globally>
[Accessed 09 September 2015].

Cooper, D.R. and Schindler, P.S. 2014. *Business Research Methods*. 12th ed. New York: McGraw-Hill/Irin.

Cresswell, J.W. 2014. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches.* 4th ed. Washington DC: Sage.

Department of Trade and Industry. 2008. *Annual review of small business in South Africa 2005-2007*. Pretoria: Department of Trade and Industry.

De Vos, A.S., Delport, C.S.L., Fouche, C.B. & Strydom, H. 2011. *Research at Grass Roots: For the Social Sciences and Human Service Professions*. 4th Edition. Pretoria: Van Schaik.

Dilver, S. 2015. The adoption of new technology: A case of Small, Medium and Micro-Sized Enterprises (SMMEs) in South Africa and Turkey. *Entrepreneurship and Innovation Management Journal*, 3(3): 129-143.

Dixit, N and Datta, S.K. 2010. Acceptance of e-banking among adult customers: An empirical investigation in India. *Journal of Internet Banking and Commerce*, 15(2): 1-17.

Fanta, A.B. 2015. Exploring the economic significance of Small and Medium Enterprises. *Journal of Governance and Regulation*, 4(1): 27-34.

Field, A. 2009. *Discovering Statistics Using SPSS*. 3rd ed. Los Angels: Sage.

Finscope. 2013. *Consumer Survey 2013*. Johannesburg: Finscope.

Frame, W.S. and White, L.J. 2014. Technological change, financial innovation, and diffusion in banking. *The oxford Handbook of Banking*: 1-37.

Gareeb, P. and Naicker, V. 2015. Determinants for South African SMEs to adopt broadband internet Technologies. *The Electronic Journal of Information Systems in Developing Countries*, 68(1): 1-24.

Garg, A.K. and Choeu, T. 2015. The adoption of electronic commerce by small and medium enterprises in Pretoria East. *The Electronic Journal of Information Systems in Developing Countries*, 68(1): 1-23.

Gautam, L. and Khare, S.K. 2014. E-Banking in India: Issues and challenges. *Scholar Journal of Economics, Business and Management*, 1(2): 54-56.

Ghobakhloo, M., Arias-Aranda, D. & Benitez-Amado, J. 2011. Adoption of e-commerce applications in SMEs. *Industrial Management and Data Systems*, 111(8): 1238-1269.

Giordani, G., Floros, C., & Judge, G. 2014. Econometric investigation of internet banking adoption in Greece. *Journal of Economic Studies*, 41(4): 586-600.

Grandon, E. and Pearson, J.M., 2004. E-commerce adoption: Perceptions of managers/owners of small and medium sized firms in Chile. *Communications of the Association for Information Systems*, 13(1): 81-102.

Grandon, E.E. and Pearson, J.M. 2004. Electronic commerce adoption: An empirical study of small and medium US businesses. *Information and Management*, 42(1): 197-216.

Gupta, P., Seetharaman, A. & Raj, J.R. 2013. The usage and adoption of cloud computing by small and medium businesses. *International Journal of Information Management*, 33(5): 861-874.

Hanafizadeh, P. and Khedmatgozar, H.R. 2012. The mediating role of the dimensions of the perceived risk in the effect of customers' awareness on the adoption of Internet banking in Iran. *Electronic Commerce Research*, 12(2): 151-175.

Hanafizadeh, P., Keating, B.W. & Khedmatgozar, H.R. 2014. A systematic review of Internet banking adoption. *Telematics and Informatics*, 31(3): 492-510.

Hassanuddin, N., Abdullah, Z., Mansor, N. & Hassan, N.A. 2012. Acceptance towards the use of internet banking services of cooperative bank. *International Journal of Academic Research in Business and Social Sciences*, 2(2): 135-147.

Havasi, F., Meshkany, F.A. & Hashemi, R. 2013. E-banking: Status, implementation, challenges, opportunities. *IOSR Journal of Humanities and Social Science*, 12(6): 40-48.

Hinton, P.R., McMurray, I. & Brownlow, C. 2014. *SPSS Explained*. 2nd ed. New York: Routledge.

Holden, R.J. and Karsh, B.T. 2010. The technology acceptance model: Its past and its future in health care. *Journal of Biomedical Informatics*, 43(1): 159-172.

Howells, P. and Bain, K. 2002. *The Economics of Money, Banking and Finance*. 2nd ed. Prentice Hall, Pearson Education.

Htxt.Africa. South Africa's mobile penetration is 133% [online].
Available from: <http://www.htxt.co.za/2014/10/23/south-africas-mobile-penetration-is-133/ >
[Accessed 21 March 2016]

IFC (International Finance Corporation). 2010. *The SME banking knowledge guide: IFC advisory: Access to finance.* 2nd ed. Washington, DC: World Bank Group.

IFC (International Finance Corporation). 2013. *IFC Jobs Study. Assessing private sector contributions to job creation and poverty reduction.* Washington DC: World Bank Group.

IFC (International Finance Corporation). 2014. *Growth Cap Building SME-focused capacity*. Washington DC: World Bank Group.

Internet World Stats. 2014. *Usage and population stats* [online]. Internet World Stats. Available from: < http://www.internetworldstats.com/emarketing.htm>
[Accessed 05 March 2016].

Internet World Stats. 2015. *Usage and population stats* [online]. Internet World Stats. Available from: <http://www.internetworldstats.com/stats1.htm>
[Accessed 05 March 2016]

Joshua. A.J. 2011. Usage patterns of electronic banking services by urban educated customers: Glimpses from India. *Journal of Internet Banking and Commerce*, 16(1): 1-13.

Kapoor, K.K., Dwivedi, Y.K. & Williams, M.D. 2015. Examining the role of three sets of innovation attributes for determining adoption of the interbank mobile payment service. *Information Systems Frontiers*, 17(5): 1039-1056.

Kaspersky Lab. 2015. (24 June 2015). *Business News*. Available from:
<http://www.kaspersky.co.za/about/news/business/2015/Almost-half-of-Internet-Users-in-South-Africa-still-Think-Visiting-Their-Branch-is-Safer-than-Online-Banking>
[Accessed 06 June 2017]

Kaspersky Lab. 2015. (23 Sep. 2015). Available from: <http://www.kaspersky.co.za/about/news/virus/2015/Kaspersky-Lab-Survey-Finds-Online-Account-Theft-the-Most-Feared-Cyberthreat-Among-Users> [Accessed 06 June 2017]

Kaspersky Lab. 2016. Kaspersky Security Bulletin 2016. Review of the year. Available from: <https://securelist.com/76858/kaspersky-security-bulletin-2016-executive-summary/> [Accessed 06 June 2017].

Kesharwani, A. and Singh Bisht, S. 2012. The impact of trust and perceived risk on internet banking adoption in India: An extension of technology acceptance model. *International Journal of Bank Marketing*, 30(4): 303-322.

Khan, M.M., 2015. Sources of finance available for SME sector in Pakistan. *International Letters of Social and Humanistic Sciences*, 47: 184-194.

Kuo, B.C., Roldan-Bau, A. & Lowinger, R. 2015. Psychological help-seeking among Latin American immigrants in Canada: Testing a culturally-expanded model of the theory of reasoned action using path analysis. *International Journal for the Advancement of Counselling*, 37(2): 179-197.

Lee, M.C., 2009. Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, 8(3): 130-141.

Lekhanya, L.M. and Mason, R.B. 2014. Selected key external factors influencing the success of rural small and medium enterprises in South Africa. *Journal of Enterprising Culture*, 22(03): 331-348.

Li, X., Troutt, M.D., Brandyberry, A. & Wang, T. 2011. Decision factors for the adoption and continued use of online direct sales channels among SMEs. *Journal of the Association for Information Systems*, 12(1): 1-31.

Lin, F.T., Wu, H.Y. & Tran, T.N.N. 2015. Internet banking adoption in a developing country: An empirical study in Vietnam. *Information Systems and e-Business Management*, 13(2): 267-287.

Laukkanen, T. 2016. Consumer adoption versus rejection decisions in seemingly similar service innovations: The case of the Internet and mobile banking. *Journal of Business Research*, 69(7): 2432-2439.

Ma, W.W.K., Andersson, R. & Streith, K.O. 2005. Examining user acceptance of computer technology: An empirical study of student teachers. *Journal of Computer Assisted Learning*, 21(6): 387-395.

Maduku, D.K. 2011. Understanding retail bank customers' attitude towards and usage cell phone and internet banking services in Gauteng, South Africa. Mcom dissertation. University of Johannesburg, Johannesburg.

Maduku, D.K. 2013. Predicting retail banking customers' attitude towards internet banking services in South Africa. *South African Business Review*, 17(3): 76-100.

Maduku, D.K. 2014. Customers' adoption and use of e-banking services: The South African perspective. *Bank and Banks Systems*, 9(2): 67-77.

Maduku, D.K. 2014. Comparative analysis of factors influencing customers' attitude towards internet and cell phone banking services. *Journal of Contemporary Management*, 11(2014): 120-140.

Malhotra, Y. and Galletta, D.F. 1999, January. Extending the technology acceptance model to account for social influence: Theoretical bases and empirical validation. In *Systems Sciences, 1999. HICSS-32. Proceedings of the 32nd annual Hawaii international conference on* (14-pp). IEEE.

Martins, C., Oliveira, T. & Popovič, A. 2014. Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application. *International Journal of Information Management*, 34(1): 1-13.

Masinge, K. 2010. Factors influencing the adoption of mobile banking services at the Bottom of the Pyramid in South Africa. MBA dissertation. University of Pretoria, Pretoria.

Masocha, R., Chiliya, N. & Zindiye, S. 2011. E-banking adoption by customers in the rural milieus of South Africa: A case of Alice, Eastern Cape, South Africa. *African Journal of Business Management*, 5(5): 1857-1863.

Matthew, D. 2013. Factors that impact consumer adoption on mobile banking with the m-commerce domain. Masters dissertation. University of the Witwatersrand, Johannesburg.

Mazhar, F., Fiaz, U., Ishrat, S., Razzaq, M.S., & Khan, T.N. 2014. An investigation of factors affecting usage and adoption of internet & mobile banking in Pakistan. *International Journal of Accounting and Financial Reporting*, 4(2): 478-501.

Mbatha, B. 2013. Exploring the potential of electronic commerce tools in South African SME tourism service providers. *Information Development*, 29(1): 10-23.

Meihami, B., Varmaghani, Z., & Meihami, H. 2013. The effect of using electronic banking on profitability of banks. *Interdisciplinary Journal of Contemporary Research in Business*, 4(12): 1299-1318.

Mishkin, F.S. 1992. *The Economics of Money, Banking, and Financial Markets.* 3rd Edition. HarperCollins Publishers.

Mishkin, F.S. 2004. *The Economics of Money, Banking, and Financial Markets.* 7th edition. United States of America: Pearson Addison Wesley.

Mishra, D., Akman, I. & Mishra, A. 2014. Theory of reasoned action application for green information technology acceptance. *Computers in Human Behavior*, (36): 29-40.

Mkoka, I.J. 2014. The factors affecting the adoption of e-banking in Tanzania banking industry: the case of banks in Dar Es Salaam region. MBA dissertation. Open University of Tanzania, Tanzania.

Mojalefa, T. 2013. Factors influencing adoption of electronic banking behaviour. Mcom dissertation. University of Johannesburg, Johannesburg.

Montazemi, A.R. and Qahri-Saremi, H. 2015. Factors affecting adoption of online banking: Meta-Analytical Structural Equation Modelling Study. *Information & Management*, 52(2): 210-226.

Mutengezanwa, M., Mauchi, F.N., Dube, T. & Gombarume, F. 2014. Factors Influencing the adoption and usage of internet banking by Consumers in Zimbabwe. *Journal of International Academic Research for Multidisciplinary*, 2(7): 115-131.

Mutezo, A. 2013. Credit Rationing and Risk Management for SMEs: The way forward for South Africa. *Corporate Ownership and Control*, 10(2): 153-163.

Mwangi, B.J. and Brown, I. 2015. A Decision Model of Kenyan SMEs' consumer choice behavior in relation to registration for a mobile banking service: A contextual perspective. *Information Technology for Development*, 21(2): 229-252.

Mwepu Mbuya, J.M., 2011. Entrepreneurial skills required for Small and Medium Enterprises in the Johannesburg Metropolitan. Mcom dissertation. University of Johannesburg, Johannesburg.

Nasir, M.A., Wu, J., Yago, M. & Li, H. 2015. Influence of psychographics and risk perception on internet banking adoption: Current state of affairs in Britain. *International Journal of Economics and Financial Issues*, 5(2): 461-468.

Nasri, W. 2011. Factors influencing the adoption of internet banking in Tunisia. *International Journal of Business and Management*, 6(8): 143-160.

Nasri, W. and Charfeddine, L. 2012. Factors affecting the adoption of Internet banking in Tunisia: An integration theory of acceptance model and theory of planned behavior. *The Journal of High Technology Management Research*, 23(1): 1-14.

Nasri, W. and Zarai, M. 2014. Empirical analysis of internet banking adoption in Tunisia. *Asian Economic and Financial Review*, 4(12): 1812-1825.

National Credit Regulator (NCR). 2011. *Literature review on small and medium enterprises' access to credit and support in South Africa.* Pretoria: Underhill Corporate Solutions

National Planning Commission, 2013. *National Development Plan vision 2030*. South Africa: National Planning Commission.

Nel, J. 2013. Cell phone banking adoption and continuance of use in an internet banking context: A study of consumers' cross-channel cognitive evaluations. Doctoral thesis. Stellenbosch University, South Africa.

Ngandu, T.B. 2012. Perception of electronic banking among Congolese clients of South African Banks in the Greater Durban area. MTech dissertation. Durban University of Technology, Durban.

Ngcobo, S. and Sukdeo, R. 2015. Challenges facing SMMEs during their first two years of operation in South Africa. *Corporate Ownership and Control*, 12(3): 707-716.

Olawale, F. and Garwe, D. 2010. Obstacles to the growth of new SMEs in South Africa: A principal component analysis approach. *African journal of Business management*, 4(5): 729-738.

Omariba, Z., Masese, N. & Wanyembi, G. 2012. Security and privacy of electronic banking. *International Journal of Computer Science Issues*, 9(4): 432-446.

OBS (Ombudsman for Banking Services). 2016. Annual Report. Johannesburg: OBS.

Ong, C.S. and Lin, Y.L. 2015. Security, risk, and trust in individuals' internet banking adoption: an integrated model. *International Journal of Electronic Commerce Studies*, 6(2): 343-356.

Oxford Business Group. *2014. The Report South Africa 2014* [online]. Oxford Business Group. Available from: <https://books.google.co.za/books?id=mQjUCwAAQBAJ&pg=PA55&lpg=PA55&dq=balancing+resilience+and+growth+south+african+large+banks&source=bl&ots=yRKNJXz2E8&sig=zDel5KvJqLLr3xDps5LUiDBfGkI&hl=en&sa=X&ved=0ahUKEwiGgMLg5MfXAhUMLcAKHYvGAfsQ6AEIfzAJ#v=onepage&q=balancing%20resilience%20and%20growth%20south%20african%20large%20banks&f=false> [Accessed 18 November 2017]

Pallant, J. 2013. *SPSS survival manual*: *A step by step guide to data analysis using IBM spss*. 5th ed. New York: McGraw Hill.

PWC (PricewaterhouseCoopers). *South African Banking Survey*. 2013. PWC. Available from: <http://www.pwc.co.za/en_ZA/za/assets/pdf/south-african-banking-survey-2013.pdf> [Accessed 09 September 2015].

PWC (PricewaterhouseCoopers). Major Banks Analysis – South Africa. 2016. South Africa: PWC.

Rahayu, S. and Rahadian, G. 2015. The influence of mobile banking transaction used on cost reduction of SMEs employers*. First International Conference on Economics and Banking (ICEB-15).*

Rawashdeh, A. 2015. Factors affecting adoption of internet banking in Jordan: Chartered Accountant's perspective. *International Journal of Bank Marketing*, 33(4): 510-529.

Razak, R.A. and Othman, M.S. 2012. Entrepreneurial orientation without stress as a'Tonic'in magnifying the Malaysian Small and Medium Enterprises productivity: A theoretical perspective. *International Journal of Academic Research in Business and Social Sciences*, 2(4): 163-180.

Redlinghuis, A.J. 2010. Information protection in the digital banking environment. Masters dissertation. University of Johannesburg, Johannesburg.

Rensleigh, C., 2010. Customer perceptions on internet banking information protection. *South African Journal of Information Management*, 12(1): 1-6.

Rissanen, M. K. (2014). Intensifying innovation adoption in educational eHealth. *Science Education International*, 25(1): 60-67.

Riyadh, A.N., Akter, S. & Islam, N. 2009. The adoption of e-banking in developing countries: A theoretical model for SMEs. *International Review of Business Research Papers.* 5 (6): 212-230.

Rogers, E.M. 1983. *Diffusion of Innovation*. 3rd ed. New York: The Free Press.

Roselius, T. 1971. Consumer rankings of risk reduction methods. *Journal of Marketing*, 35(1): 56-61.

Sabi, H.N. 2014. Research trends in the diffusion of internet banking in developing countries. *Journal of Internet Banking and Commerce*, 19(2): 1-31.

SABRIC. 21 April 2016. SABRIC encourages bank consumers to take care of their cyber security. Online. Available from: <https://www.sabric.co.za/media-and-news/posts/sabric-encourages-bank-consumers-to-take-care-of-their-cyber-security/> [Accessed 18 December 2017].

Safeena, R., Kammani, A. & Date, H. 2014. Assessment of internet banking adoption: An empirical analysis. *Arabian Journal for Science and Engineering*, 39(2): 837-849.

Saffu, K., Walker, J.H. & Hinson, R. 2008. Strategic value and electronic commerce adoption among Small and Medium-sized Enterprises in a transitional economy. *Journal of Business & Industrial Marketing*, 23(6): 395-404.

Santoso, S. and Murtini, U. 2014. Usage and risk perception of internet banking: Case study in Yogyakarta special region, Indonesia. *European Scientific Journal, ESJ*, 10(34): 271-282.

SANS Institute. 2012. *Security of Mobile Banking and Payment*. Available from: <https://www.google.co.za/?gfe_rd=cr&ei=AT01WaXHG4ip8wftgrzQDg#q=report+about+risks+associated+with+internet+and+cellphone+banking&spf=1496661248968> [Accessed 05 June 2017].

Sarlak, M.A. and Hastiani., 2011. *E-Banking and Emerging Multidisciplinary Processes: Social, Economical and Organizational Models: Social, Economical and Organizational Models* [online]. IGI Global. Hersey: New York. Available from: <https://books.google.co.za/books?id=xJQSBDAW2skC&pg=PA7&lpg=PA7&dq=e-banking+is+south+africa+is+still+emerging&source=bl&ots=RT1og9NreF&sig=mCSc8NigPBPQlisGDwXteBDDIAc&hl=en&sa=X&ved=0ahUKEwik2NeU3b3XAhWfF8AKHVi3B_AQ6AEITzAF#v=onepage&q=e-banking%20is%20south%20africa%20is%20still%20emerging&f=false> [Accessed 14 November 2017]

Saunders, A. and Cornett, M.M. 2012. *Financial Markets and Institutions*. 5th ed. Americas, New York: McGraw-Hill/Irwin.

Saunders, M., Lewis, P. & Thornhill, A. 2012. *Research Methods for Business Students*. 6th ed. Harlow, UK: Pearson.

SEDA (Small Enterprise Development Agency). 2016. *The Small, Medium and Micro Enterprises Sector of South African*. Pretoria: Seda.

Selamat, Z., Jaffar, N. & Kadir, H.A., 2013. Information technology adoption in Malaysian SMEs. *International Journal of Economic Perspectives*, *7*(4): 81-93.

Shahnoori, P. and Jenkins, G.P. 2015. Value of e-banking to Small and Medium-Sized Enterprises. No. 2015-09. JDI Executive Programs.

Shambare, R., 2011. Cell phone banking adoption in South Africa. *Business and Economic Research*, 1(1): 1-7.

Sigh, A.M. 2004. Trends in South African internet banking. *Aslib Proceedings*, 56(3): 187 – 196.

Silva Bidarra, S.H., Muñoz-Leiva, F. & Liébana-Cabanillas, F. 2013. The determinants of mobile banking acceptance: Conceptual development and empirical analysis. *International Journal of Management Science and Technology Information*, (8): 1-27.

Singh, S. 2014. Customer perception of mobile banking: An empirical study in national capital region of Delhi. *Journal of Internet Banking and Commerce*, 19(3): 1-21.

Snyman. A.N. 2014. Barriers and motivators to online grocery shopping in South Africa: A supply chain perspective. Mcom dissertation. University of South Africa, Pretoria.

Sravanthi, G. 2016. Management of risk issues in e-banking: A case study. *International Journal of Recent Research Aspects ISSN: 2349-7688*, 3(3): 38-44.

Stats SA (Statistics South Africa). [Online].
Available from: <http://www.statssa.gov.za/?page_id=1021&id=city-of-tshwane-municipality>
[Accesses 03 November 2015]

Stats SA (Statistics South Africa). 2017. *Quarterly Labour Force Survey*. Quarter 2. South Africa: Stats SA.

Strydom, J.W., 2017. Longevity of SMMEs in Soweto: Does marketing play a role? *African Journal of Science, Technology, Innovation and Development*, 9(6): 685-695.

Takieddine, S. and Sun, J. 2015. Internet banking diffusion: A country-level analysis. *Electronic Commerce Research and Applications*, 14(2015): 361-371.

Talukter, M., Quazi, A. & Sathye, M. 2014. Mobile phone banking usage behaviour: An Australian perspective. *Australasian Accounting, Business and Finance Journal*, 8(4): 83-104.

Tan, M. and Teo, S.H. 2000. Factors influencing the adoption of internet banking. *Journal of the Association for Information Systems,* 1(5): 1-42.

Teo, T. and Van Schaik, P., 2012. Understanding the intention to use technology by preservice teachers: An empirical test of competing theoretical models. *International Journal of Human-Computer Interaction*, 28(3): 178-188.

Thakur, R. and Srivastava, M., 2015. A study on the impact of consumer risk perception and innovativeness on online shopping in India. *International Journal of Retail & Distribution Management*, 43(2): 148-166.

The Banking Association South Africa. 2014. *South African Banking Overview*. Johannesburg: The Banking Association South Africa.

Tsai, K.S., 2015. Financing Small and Medium Enterprises in China: Recent Trends and prospects beyond shadow banking.

Tullet, J. 2012. *Banking reinvented: Mobile means big changes for banks*. South Africa: ITWeb. Available from: <https://www.itweb.co.za/content/JOlx4z7ko9Q756km> [Accessed 28 May 2016]

Tustin, D.H., Ligthelm, A.A., Martins, J.H. & Van Wyk, H.J. 2010. *Marketing Research in Practice*. Pretoria: Unisa Press.

Van Zyl, G. Fin24Tech. *FNB rated South Africa's top internet banking provider*. 2015. Available from: <http://www.fin24.com/Tech/News/FNB-rated-SAs-top-internet-banking-provider-20150507> [Accessed 30 June 2016]

Verdegem, P. and De Marez, L. 2011. Rethinking determinants of ICT acceptance: Towards an integrated and comprehensive overview. *Technovation*, 31(8): 411-423.

Vermeulen, J. 2017 [online]. *Vodacom customers loses R25 000.00 in sim swap fraud*. MyBroadBand. Available from: <https://mybroadband.co.za/news/cellular/203052-vodacom-customer-loses-r250000-in-sim-swap-fraud-absa-refuses-to-pay-him-back.html> [Accessed 20 November 2017]

Waite, K. and Harrison, T. 2015. Online banking adoption: We should know better 20 years on. *Journal of Financial Services Marketing*, 20(4): 258-272.

Wang, S. and Cheung, W. 2004. E-business adoption by travel agencies: Prime candidates for mobile e-business. *International Journal of Electronic Commerce*, 8(3): 43-63.

Weber, D.M. and Kauffman, R.J. 2011. What drives global ICT adoption? Analysis and research directions. *Electronic Commerce Research and Applications*, 10(6): 683-701.

Williams, N. 2011. *Research Methods: The Basics*. New York: Routledge.

World Bank. 2017. *South African Economic update. Innovation for productivity and inclusiveness.*
Available from:
<http://documents.worldbank.org/curated/en/779551505322376708/pdf/119695-WP-PUBLIC-SA-EU-2017-Digital-Version-Sep-19.pdf>
[Accessed 18 November 2017]

Wu, J. 2005. Factors influencing the adoption of internet banking by South Africans in the eThekwini Metropolitan region. Mcom dissertation. Durban Institute of Technology, Durban.

Wu, J., Song, J., & Zeng, C. 2008. An empirical evidence of small business financing in China. *Management Research News*, 31(12): 959-975.

Yang, Q., Pang, C., Liu, L., Yen, D.C. & Tarn, J.M. 2015. Exploring consumer perceived risk and trust for online payments: An empirical study in China's younger generation. *Computers in Human Behavior*, 50: 9-24.

Yang, Y., Liu, Y., Li, H. & Yu, B. 2015. Understanding perceived risks in mobile payment acceptance. *Industrial Management and Data Systems*, 115(2): 253-269.

Yeun, Y.Y., Yeow, P.H.P., Lim, N. & Saylani, N. 2010. Internet banking: Comparing developed and developing Countries. *The Journal of Computer Information Systems*, 51(1): 52-61.

Young, J. 2014. *Operational Risk Management*. 2nd ed. Pretoria: Van Schaik

APPENDIX A

Resp no:			

Adoption of e-banking amongst SMMEs in the City of Tshwane Metropolitan Municipality

Dear SMME owner/manager

Thank you for your willingness to participate in this survey. The purpose of the survey is to determine the factors that influence the adoption of e-banking amongst small and medium enterprises (SMMEs) in the City of Tshwane Metropolitan Municipality in South Africa. The questionnaire should not take more than 30 minutes to complete. This is an anonymous and confidential survey. You cannot be identified and the answers you provide will be used for academic research purposes only. E-banking in this study refers to internet and cell phone banking.

Please answer all questions by marking the appropriate selected blank block with an "X". There are no right and wrong answers

SECTION A: Entrepreneur's demographic characteristics

Q1 Gender:

Male	**1**	
Female	**2**	

Q2 Age group:

Below 30 years	**1**	
30–39 years	**2**	
40–49 years	**3**	
50–59 years	**4**	
60 years and above	**5**	

Q3 Please indicate your level of education:

None	**1**	
Grade 1-11	**2**	
Grade 12 (Matric)	**3**	
Certificate	**4**	
Diploma	**5**	
Undergraduate degree	**6**	
Honours degree/Post graduate degree	**7**	
Master's degree	**8**	
Doctorate degree	**9**	

Q4 How long has your business been in operation?

Almost a year	**1**	
2 - 3 years	**2**	
4 - 5 years	**3**	
6 - 10 years	**4**	
More than 10 years	**5**	

Q5 State your position in the business

Owner	**1**	
Manager	**2**	

Q6 Which economic sector do you operate in?

Agriculture, forestry and fishing	**1**	
Mining and quarrying	**2**	
Manufacturing	**3**	
Construction	**4**	
Electricity, gas and water	**5**	
Transport, storage and communications	**6**	
Wholesale, retail trade, hotels and restaurants	**7**	
Finance, insurance, real estate and business services	**8**	
Pharmaceutical	**9**	
Other (please specify):	**10**	

Q7 What is the number of employees in your business including yourself?

1 - 5	**1**	
6 -10	**2**	
11 - 20	**3**	
21 – 50	**4**	
51 – 200	**5**	

Q8 What is the average annual income for your business?

At most R100 000	**1**	
R100 001 – R200 000	**2**	
R200 001 – R500 000	**3**	
R500 001– R2 000 000	**4**	
R2 000 001 and above	**5**	

SECTION B: BANKING INFORMATION

Please select the appropriate answer.

Q9. **USAGE OF E-BANKING SERVICES**

Q9.1 I use e-banking to …

Item		**Never**	**Rarely**	**Sometimes**	**Often**	**All the time**
a)	view balances .	1	2	3	4	5
b)	get details of accounts.	1	2	3	4	5
c)	get account statement.	1	2	3	4	5
d)	transfer funds.	1	2	3	4	5
e)	pay bills.	1	2	3	4	5
f)	trade internationally.	1	2	3	4	5
g)	view loans.	1	2	3	4	5
h)	apply for loan.	1	2	3	4	5
i)	buy data bundles or airtime.	1	2	3	4	5
j)	set up debit order.	1	2	3	4	5

Q9.2 How frequently do you make use of e-banking?

Once a year	1	
Twice a year	2	
Quarterly	3	
Monthly	4	
Fortnightly	5	
Weekly	6	
Daily	7	
I have used e-banking only once	8	
I have never used e-banking	9	

Duration

Q9.3 I have been using e-banking for …

less than a year.	1	
1 – 2 years.	2	
more than two years.	3	

Q9.4 To what extent do the following factors limit you from adopting and using e-banking?

Item		Not to an extent at all	To a little extent	To some extent	To a large extent	To a very large extent
a)	Lack of trust in e-banking.	1	2	3	4	5
b)	Cost of data bundles is too high.	1	2	3	4	5
c)	Lack of receipt as a proof of payment when using cell phone banking.	1	2	3	4	5
d)	Lack of knowledge about e-banking Usage.	1	2	3	4	5
e)	Pages on my cell phone do not load quickly.	1	2	3	4	5
f)	Lack of instant problem solving in case of a problem occurrence.	1	2	3	4	5
g)	Cell phone's screen size is too small.	1	2	3	4	5
h)	Information is not detailed enough.	1	2	3	4	5
i)	I do not have any limitations.	1	2	3	4	5

Q9.5 Which of the following best describe your e-banking experience?

Item		Never	Rarely	Sometimes	In most cases	Always
a)	When using e-banking I experience problems.	1	2	3	4	5
b)	When using e-banking I receive error messages when browser attempts to establish the connection.	1	2	3	4	5
c)	When I log questions or problems during internet banking sessions they are resolved quickly.	1	2	3	4	5
d)	When I log questions or problems during internet banking sessions they are resolved accurately.	1	2	3	4	5

Item		Never	Rarely	Sometimes	In most cases	Always
e)	When using e-banking it is difficult to put information for typing.	1	2	3	4	5
f)	It is quick to apply for a loan using e-banking.	1	2	3	4	5
g)	When I apply for a loan using e-banking it does not take time for it to be approved.	1	2	3	4	5
h)	With e-banking I am able to do anything that I need without visiting my bank.	1	2	3	4	5

Please indicate the extent to which you agree with the following statements and select the appropriate answer where strongly disagree (1) = SD; disagree (2) = D; neutral (3) = N; agree (4) = A; strongly agree (5) = SA

Q9.6 The following statements describe the usability of e-banking:

Item		SD	D	N	A	SA
a)	Error messages tell me where the problem is.	1	2	3	4	5
b)	It was easy to download the e-banking app.	1	2	3	4	5
c)	E-banking error messages are instructive.	1	2	3	4	5
d)	The help function of e-banking is efficient.	1	2	3	4	5
e)	E-banking is flexible.	1	2	3	4	5
f)	It can do what I intend to do.	1	2	3	4	5
g)	There is an option for choosing a preferred language.	1	2	3	4	5
h)	The bank always notifies me about risks of using e-banking.	1	2	3	4	5
i)	The language used on the website is clear and understandable	1	2	3	4	5

PERCEIVED USEFULNESS (degree to which individuals feel that his/her performance will improve as a result of using e-banking)

Q.10**.** To what extent do you agree or disagree with the following?
E-Banking

Item		SD	D	N	A	SA
a)	is cost effective (lower transaction and transportation costs).	1	2	3	4	5
b)	is accessible at anytime.	1	2	3	4	5
c)	is accessible from anywhere.	1	2	3	4	5
d)	increases my productivity by saving time.	1	2	3	4	5
e)	enables me to accomplish my tasks more quickly.	1	2	3	4	5
f)	enables me to manage my financial resources more effectively.	1	2	3	4	5
g)	allows me to manage banking activities more efficiently.	1	2	3	4	5

PERCEIVED EASE OF USE (the degree to which users expect the target system to be free of effort**)**

Q.11. To what extent do you agree and disagree with the following statements?

Item		SD	D	N	A	SA
a)	E-banking is clear and understandable.	1	2	3	4	5
b)	It is easy to use e-banking to accomplish my banking tasks.	1	2	3	4	5
c)	Interaction with e-banking does not require a lot of mental effort.	1	2	3	4	5
d)	It is easy to become skilful in using e-banking without getting customer support.	1	2	3	4	5
e)	I can learn to use e-banking without getting vocational training.	1	2	3	4	5
f)	E-banking services are user friendly.	1	2	3	4	5

Q12. **PERCEIVED RISK**

Security risk (user's beliefs in potential uncertainties or loss caused by the vulnerability of online banking environment).

Q12.1 To what extent do you agree or disagree with the following statements?

Item		SD	D	N	A	SA
a)	I am worried about using e-banking because other people may be able to access my account.	1	2	3	4	5
b)	I do not feel secure sending personal information through e-banking.	1	2	3	4	5
c)	Fake e-banking web servers may be shown online.	1	2	3	4	5
d)	Because of the vulnerability of e-banking, my account may be hacked.	1	2	3	4	5
e)	If I lose my cell phone or laptop; criminals may be able to crack into my e-banking account.	1	2	3	4	5
f)	Due to fraudulent SIM-swap activities, criminals may gain access to my account.	1	2	3	4	5

Privacy Risk (concerns about personal and private information being revealed due to unauthorized access to this information by third parties or beliefs that banks make use of private information about their clients without their consent).

Q12.2. To what extent do you agree or disagree with the following statements?

Item		SD	D	N	A	SA
a)	A hacker may hack into my private information when using e-banking.	1	2	3	4	5
b)	E-banking cannot keep my personal data private.	1	2	3	4	5
c)	Personal information may be stolen by others when using e-banking.	1	2	3	4	5
d)	I do not feel totally secure by providing personal privacy information through e-banking.	1	2	3	4	5
e)	If I lose my phone or laptop; criminals may crack into my e-banking information.	1	2	3	4	5

Performance risk (monetary losses incurred due shortages and malfunctions of e-banking websites or activities).

Q12.3. To what extent do you agree or disagree with the following statements?

Item		SD	D	N	A	SA
a)	I am afraid of pressing the wrong button, when doing transactions on e-banking.	1	2	3	4	5
b)	E-banking server may not perform well or process transactions incorrectly.	1	2	3	4	5
c)	I am afraid that the e-banking system may break down while I conduct banking transactions.	1	2	3	4	5
d)	E-banking may not perform well because of slow speed.	1	2	3	4	5
e)	Because of slow speed; e-banking may process payments incorrectly.	1	2	3	4	5
f)	Due to high volume transactions on the bank's system I am afraid my creditors will penalise me if my payments are delayed.	1	2	3	4	5
g)	I am concerned about the time it takes for the money to reflect into beneficiary's account.	1	2	3	4	5

Financial risk (the potential monetary loss due to transaction error or misuse of bank account).

Q12.4. To what extent do you agree or disagree with the following statements?

Item		SD	D	N	A	SA
a)	When transferring money on internet, I am afraid that I will lose money due to careless mistakes such as wrong input of account number.	1	2	3	4	5
b)	I am afraid that if I put wrong amount of money I will lose my money.	1	2	3	4	5
c)	When transaction errors occur, I worry that I may not get a refund from the bank.	1	2	3	4	5
d)	I may lose money through fake e-banking web servers.	1	2	3	4	5
e)	I may lose money due to hackers, hacking my account	1	2	3	4	5

Item		SD	D	N	A	SA
f)	Due to fraudulent SIM-swap activities, mobile network operators will claim no liability to my financial loss.	1	2	3	4	5
g)	I worry that commercial banks will not accept liability for any loss occurred due to fraudulent SIM-swap activities.	1	2	3	4	5

Social risk (the possibility that using online banking may result in disapproval)

Q12.5. To what extent do you agree or disagree with the following statements?

Item		SD	D	N	A	SA
a)	If my bank account encountered fraud or is hacked, I am worried that I would be blamed or laughed at by my family, friends and colleagues.	1	2	3	4	5
b)	When transaction errors occur, I worry that my family, friends, and colleagues would blame me.	1	2	3	4	5
c)	By using e-banking I am afraid that I will not be able to interact with bank staff.	1	2	3	4	5
d)	E-banking services have reduced our normal interaction with our bank's business account manager.	1	2	3	4	5

ATTITUDE

Q13. To what extent do you agree or disagree with the following statements?

Item		SD	D	N	A	SA
a)	I feel that using e-banking is pleasant as it has lower bank charges.	1	2	3	4	5
b)	Using e-banking services is a good idea; it is quick to do transactions.	1	2	3	4	5
c)	I like the idea of using e-banking services; it saves time.	1	2	3	4	5
d)	Using e-banking services is an exciting idea; you can access it at anytime.	1	2	3	4	5
e)	In my opinion, it is desirable to use e-banking; you can do everything that you want to do without visiting your bank.	1	2	3	4	5
f)	I think that using e-banking for financial transactions would be a wise idea.	1	2	3	4	5
g)	Using e-banking is advantageous as it would increase my chances of getting financial assistant.	1	2	3	4	5

INTENTION TO USE E-BANKING

Q14. To what extent do you agree or disagree with the following statements?

Item		SD	D	N	A	SA
a)	I am willing to use e-banking for handling my banking needs.	1	2	3	4	5
b)	I would see myself using e-banking for handling my banking transactions.	1	2	3	4	5
c)	I will use e-banking on regular basis in future.	1	2	3	4	5
d)	I will strongly recommend others to use online banking.	1	2	3	4	5
e)	I am willing to use e-banking for handling my banking needs because it is soothing.	1	2	3	4	5
f)	Assuming that I have access to e-banking, I intend to use it for my banking transactions.	1	2	3	4	5

Q15 Any other comment

……
……
……
……

Thank you for taking part in this survey.

If you would like to receive a report on the findings, please e-mail the researcher, as it is on request.

APPENDIX B

Constructs	Source
E-banking services	Maduku (2011) and literature; Santoso and Murtini (2014); and Al-Rfou (2013)
Frequency usage	Maduku (2013); Santoso and Murtini (2014); Joshua (2011).
Factors limiting adoption and usage of e-banking	Matthew (2013); Snyman (2014) and literature
Duration	Joshua (2011)
E-banking usage experience	Redlinghuis (2010) and literature
Usability of e-banking	Snyman (2014); Casaló *et al*. (2008)
Perceived usefulness	Maduku (2011); Mazhar *et al*. (2014); Lee (2008)
Perceived ease of use	Mazhar *et al*. (2014)
Security risk	Mojalefa (2013)
Privacy risk	Lee (2009); Mazhar *et al.* (2014) and literature
Performance risk	Lee (2009); Mazhar *et al.* (2014) and literature
Financial risk	Lee (2009); Mazhar *et al.* (2014) and literature
Social risk	Lee (2009); Mazhar *et al.* (2014) and literature
Attitude towards e-banking	Al-Smadi (2012); Maduku (2011); Lee (2009); Mazhar *et al.* (2014) and literature
Intention to adopt e-banking	Lee (2009); Mazhar *et al*. (2014) and literature

APPENDIX C

Informed consent

Dear SMME owner / manager

I, Maseribe Maureen Manala am doing research with Prof. Ashley Mutezo, in the Department of Finance, Risk Management & Banking towards a Master of Commerce Degree at the University of South Africa. We are inviting you to participate in a study entitled: Adoption and usage of e-banking amongst SMMEs in the City of Tshwane Metropolitan Municipality".

The aim of the survey is to examine the level of adoption rate and usage and factors that influence and impede the adoption of e-banking by SMMEs in the City of Tshwane Metropolitan Municipality. This will enable banks to develop strategies that are aimed at increasing their SMME market share. The study therefore involves a survey questionnaire which will focus on the demographic information and business information.

Being in this study is voluntary and you are under no obligation to consent to participation. You are free to withdraw (opt-out) at any time or stage during the completion of the questionnaire without giving a reason. The survey should not take more than 30 minutes to complete. All data obtained from you will be kept confidential and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than then primary investigator and promoter will have access to them.

There are no direct benefits to participants in this study. However, we hope that the information obtained from this study may be to provide current information of what is actually happening in the local business world towards adoption of e-banking by SMMEs. This study will enable banks and other financial institutions to integrate SMME segments with e-banking systems. The results from this study will be presented in a dissertation and possibly articles at a later stage. At no time, however, will your organisation's name be used or any identifying information revealed. If you wish to receive a copy of the results from this study, you may contact one of the researchers at the contact details given below.

Electronic copies of your answers will be stored by the researcher for a period of five years on a password protected computer. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable. After the 5 year period all information will be permanently deleted.

APPENDIX D

CONSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant's full name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the survey questionnaire.

I have received a signed copy of the informed consent agreement.

Participant 's signature: …… Date……

Researcher's Name & Surname: Maseribe Maureen Manala

Researcher's signature: …… Date……

APPENDIX E

Confidentiality Agreement Template: Fieldworker

This is to certify that I, _____, a fieldworker of the research project Adoption of e-banking amongst SMMEs in the City of Tshwane Metropolitan Municipality, agrees to the responsibilities of capturing and analysing data.

I acknowledge that the research project is/are conducted by Maseribe Maureen Manala and Prof Ashley Mutezo of the Department of Finance, Risk Management and Banking, University of South Africa.

I understand that any information (written, verbal or any other form) obtained during the performance of my duties must remain confidential and in line with the UNISA Policy on Research Ethics.

This includes all information about participants, their employees/their employers/their organisation, as well as any other information.

I understand that any unauthorised release or carelessness in the handling of this confidential information is considered a breach of the duty to maintain confidentiality.

I further understand that any breach of the duty to maintain confidentiality could be grounds for immediate dismissal and/or possible liability in any legal action arising from such breach.

Full Name of fieldworker: _____

Signature of fieldworker: _____ Date: _____

Full Name of Primary Researcher: Maseribe Maureen Manala

Signature of Primary Researcher: _____ Date: _____

APPENDIX F

Confidentiality Agreement Template: Fieldworker

This is to certify that I, _____, a statistician of the research project Adoption of e-banking amongst SMMEs in the City of Tshwane Metropolitan Municipality, agrees to the responsibilities of capturing and analysing data.

I acknowledge that the research project is/are conducted by Maseribe Maureen Manala and Prof Ashley Mutezo of the Department of Finance, Risk Management and Banking, University of South Africa.

I understand that any information (written, verbal or any other form) obtained during the performance of my duties must remain confidential and in line with the UNISA Policy on Research Ethics.

This includes all information about participants, their employees/their employers/their organisation, as well as any other information.

I understand that any unauthorised release or carelessness in the handling of this confidential information is considered a breach of the duty to maintain confidentiality.

I further understand that any breach of the duty to maintain confidentiality could be grounds for immediate dismissal and/or possible liability in any legal action arising from such breach.

Full Name of fieldworker: _____

Signature of fieldworker: _____ Date: _____

Full Name of Primary Researcher: Maseribe Maureen Manala

Signature of Primary Researcher: _____ Date: _____

APPENDIX G

Factor Analysis

1. Use of e-banking

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.634
Bartlett's Test of Sphericity	Approx. Chi-Square	689.087
	df	45
	Sig.	.000

Total Variance Explained				
	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings		
Component	Cumulative %	Total	% of Variance	Cumulative %
1	31.265	3.036	30.363	30.363
2	57.363	2.484	24.844	55.207
3	74.734	1.953	19.527	74.734
4				
5				
6				
7				
8				
9				
10				

2. Factors hindering adoption and usage of e-banking

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.912
Bartlett's Test of Sphericity	Approx. Chi-Square	953.386
	df	36
	Sig.	.000

Total Variance Explained	
	Extraction Sums of Squared Loadings
Component	Cumulative %
1	63.223
2	
3	
4	
5	
6	
7	
8	
9	

3. E-banking experience

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.535
Bartlett's Test of Sphericity	Approx. Chi-Square	255.558
	df	21
	Sig.	.000

Total Variance Explained				
	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings		
Component	Cumulative %	Total	% of Variance	Cumulative %
1	30.850	1.899	27.134	27.134
2	57.685	1.878	26.824	53.959
3	77.055	1.617	23.097	77.055
4				
5				
6				
7				

4: Usability of e-banking

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.804
Bartlett's Test of Sphericity	Approx. Chi-Square	519.908
	df	28
	Sig.	.000

Total Variance Explained				
	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings		
Component	Cumulative %	Total	% of Variance	Cumulative %
1	54.425	3.076	38.444	38.444
2	71.865	2.674	33.420	71.865
3				
4				
5				
6				
7				
8				

5. Perceived usefulness and ease of use

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.861
Bartlett's Test of Sphericity	Approx. Chi-Square	869.537
	df	66
	Sig.	.000

Total Variance Explained				
	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings		
Component	Cumulative %	Total	% of Variance	Cumulative %
1	44.348	3.984	33.196	33.196
2	59.615	2.665	22.205	55.401
3	69.134	1.648	13.733	69.134
4				
5				
6				
7				
8				
9				
10				
11				
12				

6. Perceived risk dimensions

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.912
Bartlett's Test of Sphericity	Approx. Chi-Square	3635.599
	df	406
	Sig.	.000

Total Variance Explained				
	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings		
Component	Cumulative %	Total	% of Variance	Cumulative %
1	47.112	6.560	22.620	22.620
2	56.134	5.222	18.008	40.627
3	62.607	4.117	14.196	54.823
4	67.892	3.790	13.068	67.892
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				

7. Attitude and intention to use e-banking

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.885
Bartlett's Test of Sphericity	Approx. Chi-Square	1167.884
	df	78
	Sig.	.000

Total Variance Explained				
	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings		
Component	Cumulative %	Total	% of Variance	Cumulative %
1	40.752	4.576	35.204	35.204
2	65.577	3.949	30.373	65.577
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				

Regression analysis

1. Model Summary[b] Multiple regression to determine Actual usage.

Model constructs	R	R Square	Adjusted R Square	Std. Error of Estimate	Change Statistics				
					R Square Change	F Change	Df 1	Df2	Sig. F Change
1	0.074[a]	0.005	-0.001	0.60978	0.005	0.863	1	157	0.354
a. Predictors: (Constant), Intention									
b. Dependent Variable: Actual usage									
Note: Durbin-Watson is 1.290									

2. One way ANOVA multiple regression to determine Actual usage.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.321	1	0.321	0.863	0.354[b]
	Residual	58.378	157	0.372		
	Total	58.699	158			
a. Dependent Variable: Actual Usage						
b. Predictors: (Constant), Intention						

3. Coefficient[a] Actual usage.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.853	0.321		8.895	0.000
	Intention	0.075	0.080	0.074	0.929	0.354
a. Dependent Variable: Actual Usage						

4. Excluded variables

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	Performance Risk	0.242[b]	3.261	0.001	0.253	1.000	1.000	1.000
	Financial Risk	0.249[b]	3.366	0.001	0.261	1.000	1.000	1.000
	Security Risk	-0.270[b]	-3.672	0.000	-0.283	0.999	1.001	0.999
	Privacy Risk	0.218[b]	2.869	0.005	0.225	0.965	1.036	0.965
	Social Risk	0.178[b]	2.364	0.019	0.187	0.998	1.002	0.998
	Perceived Usefulness	0.045[b]	.504	0.615	0.040	0.724	1.381	0.724
2	Performance Risk	0.129[c]	1.439	0.152	0.115	0.667	1.498	0.667
	Financial Risk	0.128[c]	1.327	0.187	0.106	0.580	1.724	0.580
	Privacy Risk	-0.017[c]	-.129	0.898	-0.010	0.325	3.073	0.325
	Social Risk	0.077[c]	.949	0.344	0.076	0.817	1.223	0.817
	Perceived Usefulness	0.061[c]	.709	0.480	0.057	0.723	1.384	0.723

a. Dependent Variable: Attitude

b. Predictors in the Model: (Constant), Perceived Ease Use

c. Predictors in the Model: (Constant), Perceived Ease Use, Security risk

CITY OF TSHWANE
IGNITING EXCELLENCE

Economic Development Department

Room 216 | 2nd Floor | Ou Raadsaal | Cnr Paul Kruger and Pretorius Streets | Pretoria | 0002
PO Box 6338 | Pretoria | 0001
Tel: 012 358 1355 / 012 358 1354 | Fax: 086 214 8505
Email: TembekaM@Tshwane.gov.za | www.tshwane.gov.za | www.facebook.com/CityOf Tshwane

07 November 2016

University of South Africa (UNISA)

PO Box 392

City of Tshwane

0003

To whom it may concern

Dear Sir/Madam,

We take cognizance of the proposed research study: **The adoption and usage of e-banking by SMMEs in the City of Tshwane Metropolitan Municipality**. The aim of the study being to investigate factors that influence the adoption thereof by SMMEs and to enable banks and other financial institutions to integrate SMME segments with e-banking systems.

We hereby give **Maseribe Maureen Manala** to utilize the City of Tshwane database of SMMEs for this study, and that the findings of this study will be kept confidential and in line with the UNISA Policy on Research Ethics.

Regards,

Mr. S Mahlangu

Director: SMME Development and Support

UNISA university of south africa

FINANCE, RISK MANAGEMENT & BANKING RESEARCH ETHICS REVIEW COMMITTEE

16 November 2016

Ref #: 2016/CEMS/DFRB/018
Name of applicant: Ms MM Manala
Student #: 36767751
Supervisor: Prof A Mutezo
Staff #: 90053583

Dear Ms MM Manala

Decision: Ethics Approval

Name: Ms MM Manala, manalmm@unisa.ac.za

Supervisor: Prof A Mutezo, muteza@unisa.ac.za, 012 429 4595

Proposal: Adopting of e-banking amongst SMMEs in the City of Tshwane Metropolitan Municipality

Qualification: MCom

Thank you for the application for research ethics clearance by the Department of Finance, Risk management and Banking Research Ethics Review Committee for the above mentioned research. Final approval is granted for the duration of the project.

For full approval: The application was reviewed in compliance with the Unisa Policy on Research Ethics by the DFRB RERC 16 November 2016.

The proposed research may now commence with the proviso that:

1) The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
2) Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the department of Finance, Risk Management and Banking Ethics Review Committee. An amended application could be requested if

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

Open Rubric

there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.

3) The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.

Note:
The reference number 2016/CEMS/DFRB/018 should be clearly indicated on all forms of communication [e.g. Webmail, E-mail messages, letters] with the intended research participants, as well as with the [DFRB] RERC.

Kind regards,

Prof Ashley Mutezo
Chairperson: DFRB Research Ethics Review Committee
0124294595/muteza@unisa.ac.za

Prof Thomas Mogale
Executive Dean: CEMS

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za