THE EFFECT OF TECHNOLOGY ACCEPTANCE MODEL AND TRUST ON ONLINE BANKING IN ZAMBIA

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Declaration

I, **Collins Moonga Hamusonde**, hereby declare that the work contained in this dissertation is my own original work and has not previously in its entirety or in part been submitted at any other university for a degree.

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Signature **Date**

Abstract

The banking industry has been influenced by the evolution of technology and in the process, reduced the cost of transacting and increased the speed of service delivery. This global change has been driven by the development of alternative banking channels from the traditional brick and mortar walls to automated teller machines, phone-banking, and now the most recent phenomenon, online banking.

The current study, conducted in Lusaka, Zambia investigated the adoption of online banking technology using the Technology Acceptance Model (TAM) with perceived ease of use, perceived usefulness and trust. The two constructs perceived ease of use, perceived usefulness are known to be the most accurate subjective measurement scales for predicting user acceptance.

Technology Acceptance Model (TAM) is the most widely used model and theorizes that if a user finds the technology useful, it will influence the user's attitude positively, thereby increasing the intention to use and finally allowing for adoption.

In a cross-sectional survey of 478 participants, and using logistic regression, this study found that perceived usefulness, perceived ease of use and trust were positively associated with users' intentions to adopt online banking, and these relationships were statistically significant.

The findings from this study provide support for the theoretical model. The study further found no contradicting results, and this provides banks in Zambia with an opportunity to grow online banking as the consumer behaviour indicates a willingness and intention to adopt the technology.

The current study was limited to the urban areas of Lusaka which had a population of 3.2 million. Future research may also investigate the impact of culture on the adoption of online banking technology.

Key Words: Technology Acceptance Model (TAM), online banking, perceived usefulness, perceived ease of use, trust, Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB).

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To my wife and family, for all the support, God bless you all.

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Chapter 1 – Overview of the Research

1.1 Introduction

All over the world industries are disrupted by new technologies resulting in innovation that has allowed companies to innovate their business models and enhance their competitive advantages using (Lee, Suh, Roy & Baucus, 2019). In the last decade the use of the internet has emerged as a growing phenomenon, offering a wide range of computer applications for both personal and business use and in the process has introduced new ways for the banking industry to provide services to customers while enhancing their experience (Normalini & Ramayah, 2017).

The internet enables innovation of bank operations, transforming the way services are provided. In recent years, the increased use of smartphones has accelerated the use of online banking transactions. Banks strategy now is to lead customers to online banking, and in the process achieve operational efficiency (Hong, 2019). Additionally online banking is gaining popularity due to its unique application in business interactions between the bank and the customer using the internet and other web-based applications. This technological advancement has also impacted the financial services industry where the focus is now on the use of online banking as the strategic channel to reach out to customers. The convenience that comes with online banking positively impacts adoption because, to a large extent, it has proved to be a convenient way to transact (Fawzy & Esawai, 2017).

Also, the internet and technology revolution has been the biggest game-changer in business since the industrial revolution. More than ever before, technology adoption is now crucial for any organization to remain competitive. Organizations are heavily investing in technology and are expected to benefit through increased productivity and reduced costs (Agarwal & Brem, 2015).

Over the years, the use of technology in the financial services industry has been increasing, and this emerging trend highlights the importance technology will have on the quality of service and customer satisfaction. The rise of new technology has tremendously influenced how companies interact with consumers who are now spending more time online than ever before (Rauschnabel & Ro, 2016). Technology

has opened doors to a wide range of applications and in the process not only changing business models and paving the way for innovation but also creating new opportunities for revenue generation. (Mehdiabadi et al., 2020).

1.2 Context and background to the study

The use of online banking is supposed to appeal to customers primarily because of the benefits that the technology provides (Montazemi & Qahri-Saremi, 2015). Apart from allowing the customer control of their transactions, online banking reduces the queuing time at a physical branch and, over the years it has become evident that that online banking is emerging as a profitable channel for banks (Martins, Oliviera & Popovic, 2014).

This opportunity for a more efficient service has led banks to introduce new technology in an attempt to reduce costs and improve customer experience. The internet through online banking has altered the structure of the traditional bank by moving banking into a new digital era where banks can now provide services without being limited to physical walls (Alwan & Al-Zubi, 2016). Although online banking and been growing and known to provide numerous benefits, customers still resistant fearing the risk of losing their money, as a result, there is a large number of customers who refuse to adopt the technology (Masoud & AbuTaqa, 2017).

According to the Bank of Zambia report in 2016, the volume and value of transactions processed electronically increased by 2.4% and 12.2% respectively from 2015 (Bank of Zambia, 2016). This increase has been attributed to education campaigns led by both the Bank of Zambia and commercial banks promoting electronic payment methods across Zambia mainly during the annual Financial Literacy Week at schools and markets. Additionally, the volumes of mobile banking transactions increased by 60.9% while value increased only by 13.3%. Such variances between volumes and value growth reveal that not only is the broader population in Zambia not confident about the use of technology for financial transactions but that the technology might not be within easy access for most people. The minimal growth trend is a result of the recent growth of mobile phone transactions (Bank of Zambia, 2016).

In 2019 mobile money transactions increased by 81.0% while the value of transactions increased by to K49, 353.1 million recording a 119.0% growth, this was driven by promotion of electronic payment methods and introduction of new products, proving additional evidence that growth in electronic payments comes from efforts from financial literacy campaigns conducted by the Bank of Zambia and service providers in the market (Bank of Zambia, 2019).

Although some progress is notable, it is crucial to understand what influences customers' decisions towards acceptance of technology to ensure that there is full adoption of online banking technology resulting in the mobile penetration rate grew to 99.1% from 91.6% in 2018 while active internet subscriptions increased to 9.2 million from 8.3 million in 2018. This reflects an increase in internet penetration rate to 52.8 from 49.1(Bank of Zambia, 2019).

In 1989, Davis used Technology Acceptance Model (TAM) to explain computer usage behaviour and determinants of computer acceptance testing Perceived Usefulness, the potential user's subjective likelihood that the use of a particular system will improve their action and Perceived Ease of Use referring to the extent to which the potential user expects the target system to be effortless (Davis, 1989).

Mansour (2016) suggests that Technology Acceptance Model (TAM) is the best model to investigate how external variables influence belief, attitude and the intention to use technology through two TAM constructs, perceived usefulness and perceived ease of use. The two constructs indirectly or directly contribute to a user's use, acceptance, and adoption of new technology, suggesting that there is more to the adoption of technology than just its availability to users. Using TAM, we can explore what these factors are and over the years, there has been an increasing interest in both research and business to understand behaviour leading to adoption and TAM has gained considerable theoretical support as the best-suited model for use in predicting consumer behaviour towards adoption (Ashraf, Thongpapanl & Auh, 2014).

1.3 Problem Statement

Customers are not fully utilising online banking technology in Zambia, and it is, therefore, vital to understand the underlying factors for the low adoption rate. However, understanding the reasons behind adopting or rejecting technology such as online banking is one of the most challenging subjects in technology adoption research (Alwan & Al-Zubi, 2016).

The study aims at addressing the need to explain consumer behaviour towards the adoption of online banking in Zambia to understand why despite infrastructure availability, use has been limited.

Koenaite, Chuchu & Villiers (2019) in a study conducted in South Africa state that despite the benefits of online banking, the level of penetration is lower when compared to mobile phones and internet users. Although commercial banks are providing adequate opportunities for customers to register and transact through online banking, the acceptance of this technology has been low.

This research will explore these details to understand the underlying factors affecting adoption despite the amount of investment and marketing commercial banks have invested in growing the channel. The use of online banking technology significantly reduces the cost of doing business as such there is motivation to increase adoption because the inability to do so will either increase or maintain the high cost of doing business which will ultimately impact the customer negatively in bank charges. There is, therefore, need to understand customer behaviour to effectively manage the online banking strategy to achieve the intended objective of serving the customer better and reducing operational costs.

The objective of this study is to understand customer's acceptance of online banking technology and also to find out if the customer trusts the technology. The results of the study will contribute towards the information database that decision-makers need as they endeavour to increase the adoption of online banking in Zambia.

1.4 Purpose of the Study

The purpose of this research is to understand customer acceptance of online banking technology in Zambia using the objectives below.

1.4.1 To investigate if perceived usefulness is associated with intention to adopt online banking.

1.4.2 To examine if perceived ease of use has a relationship with the intention to adopt online banking.

1.4.3 To evaluate if trust is associated with the customer's intention to adopt online banking.

1.5 Aim of the study

The research aims to explain the influence of the Technology Acceptance Model and trust in online Banking in Zambia by

1.5.1. Reviewing the literature concerning online banking and its adoption.

1.5.2. Investigate perceptions and attitudes towards online banking technology acceptance.

1.5.3. Understand the impact of the Technology Acceptance Model in online banking technology adoption, use, and trust.

1.6 Research Questions

If banking is evolving away from its traditional personal and physical interaction to being serviced using non-personal internet technology without physical interaction to what extent is this new channel being adopted and used in Zambia and what are the factors influencing the rate of adoption?

The following are the critical areas of focus in this study.

1.6.1. Has the customer accepted online banking technology, and how does the level of acceptance impact online adoption?

1.6.2. Does the customer trust online banking technology, and how does the level of this trust impact online adoption?

1.7 Conceptual Model

The conceptual model shows how the features of a Technology Acceptance Model (TAM) design are reviewed using perceived ease of use, perceived usefulness, and trust. It is, however, essential to recognize that TAM has evolved through and from other theories and models related to technology acceptance, adoption, usage, and user behaviour.

The Theory of Reasoned Action (TRA) is the earliest technology acceptance theory. Developed in the field of social psychology and is moderated by two primary constructs of attitude toward behaviour and subjective norm (Lai, 2017). Following TRA, came the Theory of Planned Behaviour (TPB), this model incorporated the first two constructs used in TRA of attitude and subjective norm and included a third factor, perceived behaviour control (Ajzen, 1991).

According to Davis (1989), the original TAM was introduced as an adaptation of the TRA. In 1989 TAM was remodelled and introduced two new constructs of perceived usefulness and perceived ease of use and also introduced the belief that a person's behaviour towards a system is influenced by several external variables in TAM (Lai, 2017).

Venkatesh & Davis (2000) say the final version of TAM both perceived usefulness and perceived ease of use were found to have a direct influence on behaviour intention, thus eliminating the need for the attitude construct.

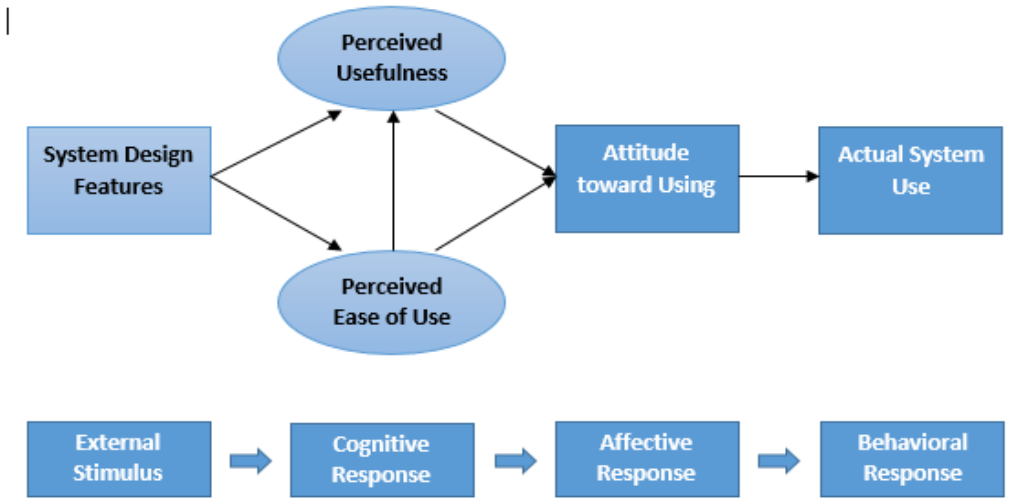

Figure 1: Conceptual model of the Technology Acceptance Model (Venkatesh & Davis, 1996:p.453)

1.7.1 Theoretical underpinning

According to Bashir & Madhavaiah (2014) the three main theories widely accepted for measuring adoption of new technology are Theory of Reasoned Actions (TRA), Theory of Planned Behaviour (TPB) and Technology Acceptance Model (TAM) which is currently the most utilized model in measuring adoption of new technology and the use of computers in general. Within TAM, it was possible to examine perceived ease of use, perceived usefulness, and trust.

Perceived ease of use as a construct of TAM refers to the use of technology without much effort (Bashir & Madhavaiah, 2014). It is, therefore, a significant contributor to adoption and can bear a significant impact on an individual's intention to use. Further research has shown that perceived usefulness measures the extent to which users believe that technology will improve performance and therefore bearing a strong influence on users' intentions to adopt the technology (Yee-Loong Chong et al., 2010).

Trust refers to the acceptance by the consumer to be vulnerable to technology because of a perceived positive gain. It is essential to build trust by making users feel a high degree of safety as they transact (Alwan & Al-Zubi, 2016). Trust is also a significant factor in a user's willingness to engage in new technology such as online banking. The level of trust therefor will provide insight into the level of adoption.

1.7.2 Significance of the Study

The study focused on customer acceptance of online banking technology using TAM and how it impacts online adoption. The results of the study are beneficial to banks in their quest to acquire a deeper understanding of customer behaviour, which will, in turn, enhance the formulation of strategies on how to increase acceptance and the use of online banking in Zambia.

The results will also contribute towards developing appropriate approaches to the introduction of technology to end-users, and finally, the findings of the study will serve as both reference material for future research in this field of study. Therefore this research may be deemed as a timely as well as a critical research study.

Also, this study will provide an opportunity to test the applicability of the TAM in the Zambian context and practically act as a guide to further understanding of technology adoption.

1.8 Problems Encountered

The biggest problem encountered was respondent participation during the data collection process. Secondly, data collection was near shopping malls, and most of the respondents approached turned out to be residents of Lusaka, the capital city and financial hub of Zambia's economy ultimately reduced the number of participants from either rural or semi-rural locations.

1.9 Demarcation of the Study

This study identified factors for effective online banking adoption using perceived ease of use, perceived usefulness, and trust in using TAM. The study was conducted only in Lusaka, Zambia.

This study sought to understand customer's behaviour and attitude towards online banking using TAM. The results of this study may serve multiple purposes from both corporate and research perspectives. Chapter 2 is a comprehensive review of the literature on the theoretical framework in terms of baking in general and TAM. In Chapter 3, the topics discussed include the research questions, research design, and the specific details of procedures. The chapter also contains the results of the study and interpretation of the findings. The discussion, conclusion, and recommendations make chapter 4.

1.10 Summary

The internet has emerged as a growing phenomenon impacting technology and other business fields such as financial services offering convenient and modern ways of conducting business and reaching customers. Online banking appeals to customers because it improves the banking experience. It is more advanced in western countries, but this technology is also coming into Africa with varying adoption levels, necessitating a need to understand how adoption occurs, and TAM is the best theory to use in understanding behavioural factors impacting the adoption of online banking technology. This study aims at explaining this consumer behaviour in Zambia.

Chapter 2 - Literature Review

2.1 Introduction

In the modern history of the technological era, the first-ever online banking transaction recorded was in the United States of America by Stanford Federal Credit Union whose technology journey began with Automated Teller Machines (ATM) and telephone banking. In November 1993, Stanford Federal Credit Union conducted its first of four online test transactions and the following year in 1994, became the first bank to offer online banking services through its website (Rahi et al., 2018). Since then, banks have continued providing banking services but with a new approach riding on the success of Stanford Federal Credit Union, and banking as the world has known it began to evolve.

The traditional brick and mortar branch office is no longer entirely sufficient to meet the ever-growing need for faster banking services suiting the rapidly changing and modern lifestyles of consumers (Khan, Khan & Xiang, 2017). Customers have been demanding more value for their money in terms of service and want to spend the least amount of time possible waiting for their transactions. Banks have now resorted to investing more in technology and in the process shifted from traditional banking structure towards digital banking (Alwan & Al-Zubi, 2016). This new digital banking and technology agenda has transformed banking resulting in improved efficiency, better service, and attracting new customers (Safeena & Kammani, 2017).

The internet has emerged as one of the most profitable platforms for business and banking (Martins, Oliveira & Popovic, 2014). Internet technology has been growing with new and advanced applications available all the time, these new applications and software are being developed for organisations to attract and retain customers, allowing them to perform a range of transactions, such as paying bills, transferring funds, printing statements, and checking account balance through various online banking solutions.

Research has shown that in the last decade the world has experienced an increase in the use of computer and smartphone technology, enabling online services to be offered to consumers in new and better ways (Wentzel et al., 2013). However, studies also reveal that even if users have access to new technology, several factors are at play in influencing their decision about how, when and if they will use it (Yaghoubi & Bahmani, 2010).

How customers or users of new technology react towards adopting technology is influenced by many factors such as system design, awareness, and education (Yaghoubi & Bahmani, 2010). The ultimate decision of an individual to adopt or reject new technology is influenced by psychological and behavioural factors that are continually interacting with an individual and can easily get overlooked if not taken into account.

Consequently, further understanding of customer behaviour preceding the decision is critical, especially in developing countries where adoption to online banking technology is quite low. Customers in developing countries are unlikely to fully utilise online banking despite the rapid growth of the internet and an increase in the use of smartphones and other handheld electronic devices. The number of online banking users remains relatively low as compared to developed countries (Ameme, 2015). Other factors other than just the availability of internet that contribute to the adoption of online banking and customers will only use online banking when they perceive it as useful, easy to use and develop trust in the technology.

2.2 Theoretical Framework

The three most referenced theories of adoption studies are The Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), and the Technology Acceptance Models (TAM) have over the years been used to explain the behaviour and adoption of technology. Further studies of the original TAM and TRA resulted in the convergence of the two theories and thereby developing into a model based on the three determinants of perceived usefulness, perceived ease of use and behaviour intention (Davis, Bagozzi & Warshaw, 1989). The objective of the two converged theories referred to as TAM2 was to keep the original TAM constructs intact and

include the additional key determinants perceived usefulness and perceived ease of use and intention constructs (Venkatesh & Davis, 2000). Another model, TAM3 was introduced, and it added the determinants of TAM's ease of use and usage intention constructs and presented a complete homological network of the determinants of users' technology adoption (Venkatesh & Bala, 2008).

TAM is most influential theoretically predictive interpretation model of technology adoption behaviour with significant impact on the user's attitudes. Further, the reliability and validity of the scale design have also been extensively verified (Li, Wang, Wangh & Zhou, 2019). Additionally TAM, as one of the most cited models in studies on acceptance of new technology and computer-based systems, focuses on the assumption that the customer's behavioural intentions determine the use of a system or technology. In the last two decades, TAM has been used in technology adoption studies displaying a high level of prediction power and easy to understand (Rahi et al., 2018). Furthermore, TAM proposes that the probability of new technology being used is governed by the constructs of perceived usefulness and perceived ease of use, both of which refer to how the consumer perceives that using a specific type of technology would enhance his or her task outcome and the extent to which the use of the technology is free of effort (Davis, 1989). This model was developed to study how an individual's perceptions about the usefulness, ease of use, and attitude towards the adoption of a specific system or technology affect its future use. The two constructs, perceived usefulness, and perceived ease of use have been proven to be critical determinants of consumer intentions to adopt online banking (Bashir & Madhavaiah, 2014).

Therefore, TAM theorizes that technology that is easy to use and found useful will have a positive influence on the intended user's attitude which in turn increases the intention to use and consequently generating required adoption (George & Kumar, 2013). This position supports the notion that individuals behave rationally, evaluate all information available to them and they will take into account the effects of their actions before making a decision, therefore, ultimately supporting the suggestion that use of technology is determined by behavioural intention to use it (Ameme, 2015). This intention is then further influenced by the users' attitude towards the use of technology, its perceived usefulness, and its perceived ease of use. The higher

the perceived usefulness and the perceived ease of use of technology, the more positive the attitude of its users will be, which in turn increases the intention to use.

2.2.1 Background

Online banking has revolutionized banking as it has made banking more convenient, allowing customers to perform their transactions anywhere with ease and at minimum cost (Safeena & Kammani, 2017). It is therefore only reasonable that commercial banks are gradually looking at investing more in this technology as one of the critical strategies to meet customer demands while keeping up with competition and providing new generation banking services without heavily investing in either additional physical brick and mortar walls or operational infrastructure.

This investment in technology and online banking, to be specific, will result in reduced operational costs and improved customer loyalty and retention (Alwan & Al-Zubi, 2016). Online banking is becoming more convenient, and this new technology has brought about a paradigm shift that is changing the nature of banking as we have known it (Siraye, 2014).

Further research shows that online banking will grow sharply in the next few years affecting the competitive advantage enjoyed by traditional physical branch-based bank distribution (Rahi et al., 2018). Banking will no longer be limited to a specific location or building, where a customer has to approach the branch in person to transact with the help of bank staff (Ameme, 2015).

With online banking, customers are now exposed to a broader range of financial benefits, faster transaction speed and increased information transparency right in front of them and at their convenience (Yaghoubi & Bahmani, 2010). Technology emerged as a strategic resource for achieving higher efficiency, better control of operations, increased productivity, and profitability (Rahi et al., 2018).

However, despite the lower operational costs, improved customer experience and satisfaction with paperless banking, consumer adoption is limited and in many

cases, falls short of expectations (Martins, Oliveira & Popovic, 2014). This experience has been attributed to customer's unwillingness to adopt the new technology irrespective of the benefits that come with it. Customers are hesitant to adopt the new technology due to uncertainty, security concerns, and lack of understanding (Rahi et al., 2018).

Further studies also show that despite the benefits available such as convenience, time-saving, round the clock banking, and low transaction costs, customers are still resistant to adopt online banking (Bashir & Madhavaiah, 2014). Additionally, some individuals refuse entirely to adopt online banking altogether for reasons wholly unknown and unexplainable (Khan, Khan & Xiang, 2017).

Online platforms in developing countries such as Zambia usually provide only the basics of services such as product information and glossary of services offered by the bank (Fawzy & Esawai, 2017). Customers have minimal transactional access, and consequently, banks in developing countries are still predominantly operating in the traditional way of attending to walk-in customers (Siraye, 2014). A position that is very different in the developed world where adoption is progressive and customers are transacting in online banking (Ezzi, 2014).

2.2.2 Theoretical Framework

Due to security, privacy, and perceived risk concerns, customers in developing countries are reluctant to trust the technology and therefore, unwilling to provide their details over the internet (Fawzy & Esawai, 2017). For such technology to be a success in Africa, a change in customer behaviour is needed because Africa has been the slowest in adopting the new technology (Raza, Umer & Shah, 2017). The use of online banking has increased the risks that come with such technology for both customers and banks. As technology advances, criminals are also becoming more advanced using new methods of illegally obtaining both data and money from unsuspecting customers. The rising security concerns are impacting the adoption of online banking and in order to address these the anxieties, banks must conduct financial literacy education and awareness about the security features available

because customers with a better awareness of security are more likely to use online banking a lot more freely (Yousafzai, Pallister & Foxall, 2003).

The banking industry is constantly undergoing technological advancements and with millions of financial transactions taking place, customers need assurance that their data is available and kept secure at all times, this is even more critical because lack of information and education on safety of internet negatively contributes to the low rates of adoption (Normalini & Ramayah, 2017).

Security is one of the main obstacles to the adoption of online banking because there is always a possibility of compromising the process through unauthorised access to customer accounts and therefore the most significant challenge is winning the trust of customers who are afraid that their financial data will become available for fraudulent purposes If left unchecked and not addressed this risk and perception damages customer confidence in online banking (Ezzi, 2014). Unfortunately, online banking technology does not immediately provide the security assurance that consumers have in the traditional bank setting with formal physical interaction and document processing (Fawzy & Esawai, 2017). It, therefore, is essential to have this addressed because privacy and security are considered to be among the critical determinants of the success and growth of trust in online banking (Yousafzai, Pallister and Foxall, 2003). When customers know that their information will be secure, confidence in online banking will increase (Alwan & Al-Zubi, 2016).

Moreover, customers are apprehensive that a breakdown of servers or disconnection from the internet could occur while conducting online transactions and therefore the quality of internet connectivity is a critical factor for internet-based transactions thus making the quality of the internet a key factor for customer experience and adoption. In basic terms, without proper internet connectivity, the use of online banking is not possible, hence internet service quality is an essential prerequisite for customer satisfaction and a significant feature for banks to differentiate themselves in the marketplace (Alwan & Al-Zubi, 2016).

2.2.3 Critics of the Technology Acceptance Model

Even though the Technology Acceptance Model (TAM) is well suited in predicting an individual's acceptance of new technology, it is regarded by some to be insufficient in explaining consumer decision to adopt new technology. Some have even gone as far as saying TAM overlooks the influence of a customer's social and psychological perceptions regarding the adoption of technology and that the model further lacks acknowledgement of individual differences of the users (Bashir & Madhavaiah, 2014).

It is also argued that TAM only takes into account the technical aspects of a system or new technology ignoring psychological and social parameters that could also significantly influence uptake, as a result some have advocated for the additional use of the Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) models to explain factors that determine behavioural intention of individuals attitudes toward that behaviour (Yaghoubi & Bahmani, 2010).

Ameme (2015) further argues that TAM is limited by the fact that the measurement of individual acceptance is dependent on the feelings of respondents it is also thought that the model does not include economic, demographic and exogenous variables all of which further constrain the use of TAM to fully determine the attitude and intention of an individual (Raza, Umer & Shah, 2017).

Also, it is argued that TAM's fundamental constructs do not fully reflect the influences of technology and usage factor that may alter users' acceptance, furthermore, it is also contended that factors affecting the acceptance of new technology vary depending on the type of technology. Likewise, it has also been stated that TAM itself is insufficient to explain users' decisions to adopt new technology, and that the model should be used as a base model extended for more accurate results by adding additional variables depending on the types of technology under review as they are being studied (Yee-Loong Chong et al., 2010). In this regard, research also reveals that various acceptance models using TAM as

a base have been developed thereby necessitating a search for additional factors that can better predict the acceptance (Safeena et al., 2013).

2.2.4 Competing Theoretical Models

The Theory of Reasoned Action (TRA) is one of the models used in explaining human behaviour using the constructs of attitude and subjective norm. The attitude construct refers to an individual's positive and negative feelings towards executing the intended behaviour, while subjective norm highlights the extent to which individuals think that the intended behaviour should or should not be carried out based on the perceptions of the people within their social circle The development of the TRA first began in the field of social psychology.

However, TRA had its limitations as some thought the model had little power and control over behaviour and attitude and to counter this argument, the third factor of Perceived Behavioural Control (PBC) was included to the model leading to the creation of the Theory of Planned Behaviour (TPB). This theory was initially developed by Ajzen and Fishbein, introduced in 1967, revised in the early 1970s, and since 1980 and had since then been widely used in the study of human behaviour (Shokouhyar, Samadi & Tavallaee, 2017).

2.3 Theory of Planned Behavior (TPB) and Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM), is a model used for explaining factors that lead to acceptance of technology and user behaviour across a broad range of technology using perceived usefulness and perceived ease of use as the main determinants of the behavioural attitude toward a new technology (Safeena et al., 2013).

The Theory of Planned Behaviour (TPB) predicts deliberate behaviour, on the basis that behaviour can be deliberative and planned and the attitude toward a behaviour is the degree to which performance of the behaviour is positively or negatively valued (Shokouhyar, Samadi & Tavallaee, 2017).

The theory, as depicted in the diagram below, suggests that attitude, control, and norms have an influence on behaviour and the three cognitive antecedents. The first, attitude, which refers to the individual's evaluation of the target behaviour, then subjective norms, which capture the opinions of social reference groups such as family and friends regarding whether the individual should engage in the behaviour and finally perceived behavioural control (PBC), which denotes the perceived ease or difficulty of behaving a certain way (Ajzen, 1991).

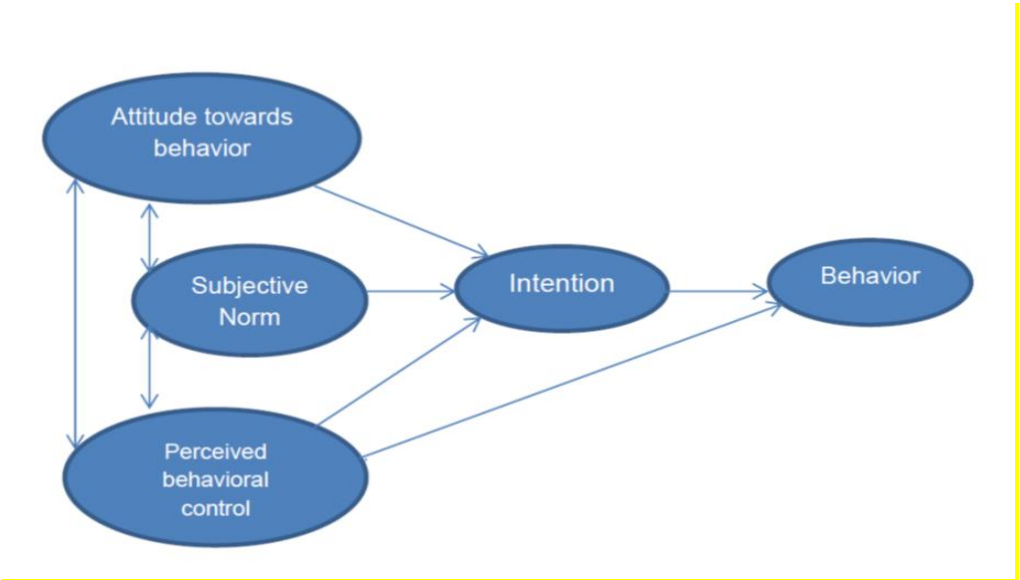

Figure 2: Conceptual Model of the Theory of planned behaviour (Ajzen, 1991: p. 182).

Both TPB and TAM are based on the premise that intention determines behaviour and that the attitude towards the behaviour determines intention itself (Safeena et al., 2013). As depicted in the diagram below.

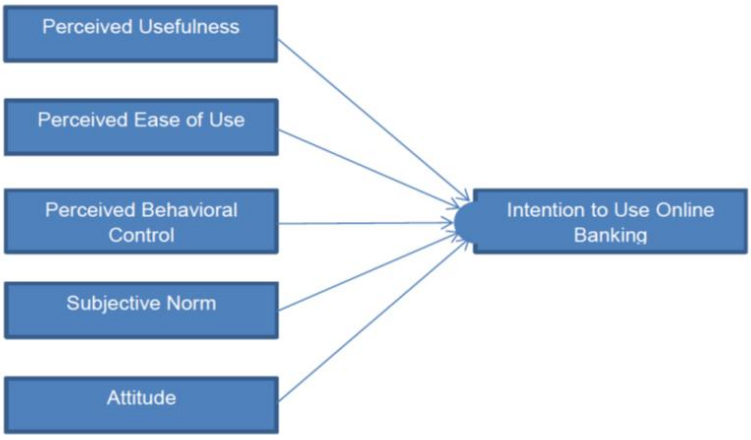

Figure 3: Conceptual Model TAM and TPB Combined (Safeena et al., 2013:p.148).

Technology Acceptance Model and Theory of Planned Behavior both explain intention towards the use of technology however TAM focuses more on the acceptance of technology, whereas TPB dwells more on the behavior towards the use of technology in general. Furthermore, TAM models how users come to accept and use technology and are an extension of the Theory of Reasoned Action (TRA) and TPB, which have long provided useful conceptual frameworks for handling the complexities of human social behaviour (Safeena et al., 2013).

2.4 Existing Literature on online banking Technology in Banking

Information technology has been the cornerstone of recent reforms in the financial sector, increasing the speed and reliability of financial operations, setting the stage for the unprecedented increase in financial activity across the globe and reducing the cost of transacting. Through technology, banks have been able to meet the high expectations of the customers who are now more demanding and technology savvy compared to the customers from three decades ago. Banks are now turning to technology to improve efficiency, service quality, and attract new customers. The banking industry has utilized the benefits of technology, out of which has emerged online banking (Safeena et al., 2013). This technology is so innovative that banks can stay connected to customers not only across local networks but also to other geographic locations using high-speed network infrastructure. Dangolani (2011) concluded that the banking industry needs to spend more on technology to improve its operations, customer service, and products. While many governments in developing countries have made good progress in delivering digital technology, most of the consumers are still overwhelmed by the complexity of the technology (Carter & Bélanger, 2005).

The banking industry in Zambia is also experiencing the effects of new technology through the use of Automated Teller Machines (ATM), Point of Sale terminals and online banking technology, however, there is a need for further development (Bank of Zambia, 2013). Over the years there is an increase in the number of transaction in e-banking and the cheque image clearing system recorded a 16.0% reduction in the volume of cheques cleared while at the time the electronic funds transfer

clearing system observed that the volume of electronic funds transfer (EFT) transactions processed increased by 11.3%. The second-largest increase was in transactions processed through the point of sale terminals where the volume of transactions processed on the point of sale terminals increased by 50.5% and finally 2017 also recorded that is the volume of transactions processed on mobile money platform increased by 67.5 % (Bank of Zambia, 2017).

2.4.1 Financial Literacy

Financial literacy is a measure of how one understands financial concepts the ability to manage their financial transactions while being mindful of life events and changing economic conditions (Fernandes, Lynch & Netemeyer, 2014). Research has shown that there is a lack of financial literacy, especially among communities or individuals with low education levels, women, and ethnic minorities. This lack of financial literacy often results in poor financial decision making, a common issue in developing countries around Africa, Zambia included. Consumers in developing countries now have opportunities to access various financial markets through technology and at times find themselves handling complex systems exposing them to financial risks. Financial literacy, therefore, has become essential as technology becomes more available (Drexler, Fischer & Schoar, 2014).

The above highlights the importance of financial literacy, and in the Zambian context, this is being championed under the financial sector development plan by the central bank, where the Government continues to implement reforms focusing on financial inclusion (Bank of Zambia, 2014). The financial literacy week is observed every year to sensitise the public on financial matters. In recognition of the effort in financial literacy education, Zambia received the global money week award for Africa under the Child and Youth Finance International movement at the United Nations in mid-2014 (Bank of Zambia, 2014).

2.5 Development of the hypotheses

Due to elements of subjectivity, useful measurement of user acceptance in technology has been a significant challenge for many years. As a result, it has been

challenging to validate most methods against actual usage. Research has emphasised the theoretical importance of perceived usefulness, and perceived ease of use as determinants of user behaviour and the two measurement scales have been developed and accepted as viable options of measurement. Perceived usefulness and perceived ease of use have been tested for reliability and construct validity, and the results have shown that perceived usefulness has a strong correlation with usage behaviour and that perceived ease of use is a causal antecedent to perceived usefulness (Davis, 1989).

2.5.1 Perceived usefulness

Perceived usefulness is the extent to which the individual believes that online banking is more beneficial to use than the traditional branch-based transaction. Research has shown that perceived usefulness has a strong influence on users' intentions to adopt the technology (Yee-Loong Chong et al., 2010). Another definition states that perceived usefulness is the extent to which a person believes that using a system will increase their job performance (Davis, 1989). It has further been defined as the degree to which consumers perceive that using technology is more efficient (Khan, Khan & Xiang, 2017).

It, therefore, means that perceived usefulness is one of the determinants of whether or not an individual would choose to transact with a bank online or not. The impact of perceived usefulness on technology was suggested by Schultz & Slevin (1975) who conducted a study on the effect of the theory on job performance and found that performance was related to a decision to use and further studies discovered that performance is correlated with usage and thereby suggesting that a system that does not improve performance will most likely be rejected (Davis, 1989).

In this regard, we test the following hypothesis:
H_0: There is no relationship between perceived usefulness and the intention to adopt online banking.
H_1: There is a positive relationship between perceived usefulness and the intention to adopt online banking.

2.5.2 Perceived ease of use

Perceived ease of use refers to the belief of an individual in using technology with minimum or free of effort (Bashir & Madhavaiah, 2014). The construct suggests that even though customers may believe that new technology is useful, they may also fear that it is not easy to use (Davis, 1989). It is derived from the Technology Acceptance Model (TAM) and refers to the complexity of using technology and can bear a significant impact on an individual's intention to use (Khan, Khan & Xiang, 2017). Perceived ease of use has also been identified as a critical factor in adoption of technology and is even more critical with online banking due to the fact that users have no physical interaction with anyone, user-friendliness and the ease of use of online banking websites significantly reduces the fears of using online banking (Yee-Loong Chong et al., 2010).

Perceived ease of use also depends on the features and the website design of the bank because when the website meets an individual's expected needs only then will they be satisfied (Fawzy & Esawai, 2017). It is therefore regarded as one of the critical determinants of actual adoption of technology because in this situation customers must recognize online banking as easy to understand and use as such the fewer the technical skills required for use, the more the customer is likely to adopt it (Alwan & Al-Zubi, 2016). Moreover, where consumers do not have the traditional face to face interaction with the provider, ease of use and user-friendliness will generate stronger inclinations to adopt such platforms (Khan, Khan & Xiang, 2017).

Based on the literature above this research raises the second hypothesis:
H_0: There is no relationship between perceived ease of use and the intention to adopt online banking.
H_2: There is a positive relationship between perceived ease of use and the intention to adopt online banking.

2.5.3 Trust

Trust in a system refers to the enthusiasm of the consumer to be vulnerable to the service providers based on positive expectations. A bank needs to design an online banking strategy that builds consumer trust by making them feel that they have a high degree of control of their banking transactions (Alwan & Al-Zubi, 2016). Trust is essential where it is necessary to rely on the other party to be fair and not engage in opportunistic behaviour additionally (Yousafzai, Pallister & Foxall, 2003).

Additionally, trust is the psychological willingness of customers to perform online transactions expecting that the bank will fulfil its obligations (Normalini & Ramayah, 2017). Hence trust is a significant antecedent of customers' willingness to engage in online transactions, and although the internet is revolutionising the banking industry, consumer acceptance of this technology is limited and slow (Yousafzai, Pallister & Foxall, 2003). Trust is crucial in online banking due to uncertainties around the technology. The inclination of users to share their personal information and exchange money through the internet is influenced by trust (Khan, Khan & Xiang, 2017).

Developing trust over privacy and security issues is the ultimate challenge facing online banking as there is a perception that banking systems do not have adequate security (Normalini & Ramayah, 2017). Further, literature states that trust is an essential factor in practically all consumer interactions especially in electronic commerce where it is and central to any economic transaction over the internet but more with online banking where the degree of uncertainty with transactions is higher than in traditional bank (Grabner-Kräuter & Faullant, 2008).

Trust, therefore, is a crucial factor in influencing online banking acceptance (Yousefi & Nasiripour 2015). Further research also adds that the features of online banking render a unique environment, in which trust is of crucial importance, and any lack of it is one of the most formidable barriers to people engaging in online banking (Yousefi & Nasiripour, 2015). Ultimately trust determines the degree to which customers perceive the technology as secure with less complexity and low perceived risk of a transaction.

Based on the literature above this research raises the third hypothesis:

H_0: There is no relationship between trust and the intention to adopt online banking.

H_3: There is a positive relationship between trust and the intention to adopt online banking.

2.6 Summary

In recent years there has been an increase in online banking technology whose benefits include cost reduction, better and new opportunities, reduced service lead time, and more personalized service to the consumers. Research has shown that online banking has improved services in the banking industry, especially in developed countries such as the United States and those in Europe. However, in developing countries such as Zambia are still quite behind despite notable growing trends in the adoption (Yee-Loong Chong et al., 2010).

Research in technology acceptance and adoption takes a variety of theories, key among them is TAM considered the most influential and commonly used model for describing an individual's acceptance of technology and derived from TRA. TAM suggests that acceptance is determined by two significant variables perceived usefulness and perceived ease of use (Lee & Larsen, 2003).

Chapter 3 - Methodology and Results

3.1 Introduction

This section presents the research methodology and findings. The research aimed to explain the influence of the technology acceptance model (TAM) and trust in online banking in Zambia.

As discussed in the previous chapters, the growth of the internet has significantly impacted the financial services industry through the introduction of new channels, besides, the internet has become more central in the strategy to eliminate the need for physical offices. However, it must also be recognised that the growth of online banking is determined not only by banks but also by customers' acceptance of it (Hosein, 2011).

Studies in technology adoption and acceptance have introduced many theories, such as the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB) each with several variables, however, for this research, the focus was on the Technology Acceptance Model (TAM).

In trying to explain the influence of technology, the study explored perceived usefulness, perceived ease of use, and customer trust in bank systems and how they all influence customer's intention to adopt online banking.

3.1.1 Conceptual model

This study drew on the Technology Acceptance Model (TAM). In attempting to understand the influence of technology on the adoption of online banking, this study highlighted the concepts of perceived usefulness, perceived ease of use and introduced trust as an additional construct, against the outcome variable, adoption of online banking.

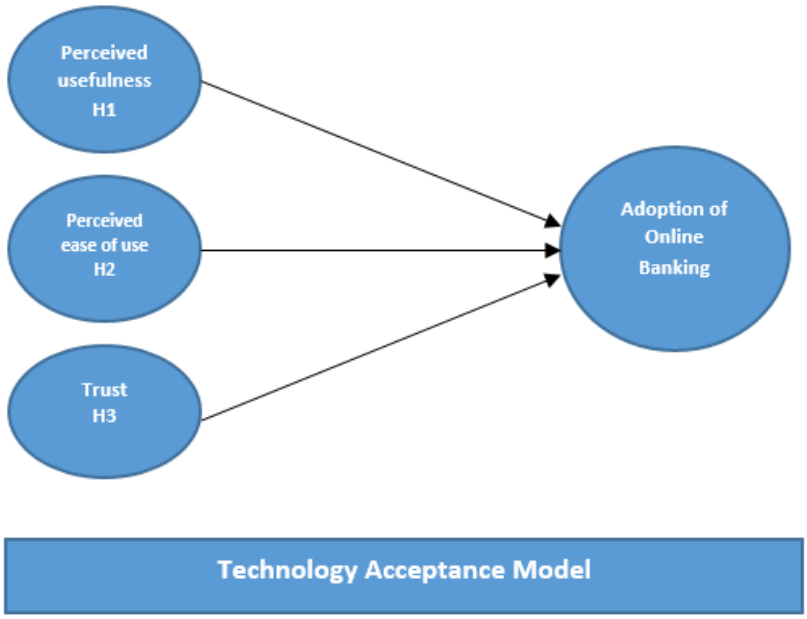

Figure 4: Research Conceptual Model (Technology Acceptance Model)

3.2 Research design

This research design is as a framework of methods and techniques that this study will use logically to effectively address the research problem regarding customer acceptance of the online banking technology, the level of trust in the technology and how this acceptance and trust impact online adoption and use.

For this study, a survey design was used. The survey was used to find out random bank users' intention to adopt internet banking, with a specific focus on perceived usefulness, perceived ease of use, and trust. This study used a quantitative approach as it allowed for statistical analysis to be done on the data collected through a questionnaire.

3.3 Population and sample

The study was carried out in Lusaka, at four different local malls with banks Arcades, Manda Hill, Levy Mall and Twin Palm Mall. The study population included Lusaka residents who had active bank accounts, predominantly from an urban setting and were visiting their banks at the local malls.

Participants were above 18 years old, were randomly selected as they moved around the malls and consented to take part in the study. Lusaka was purposefully selected because it is the capital city of Zambia and therefore, the central commercial hub of the country with the most significant number of people with active bank accounts. Additionally, all the registered commercial banks have a presence in Lusaka, providing a good variety of bank customers for the survey.

3.4 Data acquisition

A total of 478 active bank account holders participated in the study. A self-administered structured questionnaire was used to collect data from participants using an android application distributed to randomly selected respondents at the four malls within Lusaka. Three research assistants collected the data, 2 administering 160 tools while 1 administered 158. They also assisted the respondents who needed assistance with the tool, ensuring a 100 per cent response rate.

3.5 Ethical Approval

Ethical approval was obtained from the Departmental Research Ethics Committee on 1st October 2018 at Rhodes Business School. Participation was entirely voluntary, and no one was remunerated for taking part in the survey. Confidentiality was also upheld as no personal information was disclosed to anyone who was not part of the research team. Participation in the study did not affect the respondents' access to their banking services.

3.6 Description of variables

The questionnaire collected demographic data, information on the adoption of internet banking and information on the variables of interest; trust, perceived usefulness, and perceived ease of use.

A total of 15 questions were developed to capture one adoption factor; three perceived usefulness factors, eight perceived ease of use factors and three trust

factors; each measured by a six-point Likert scale. The tool used a Six Point Likert Scale to allow respondents to rank their perceptions about internet banking, from "Strongly Disagree" to "Strongly Agree" and an "I Don't Know" option. (See the Appendix A for the questionnaire). The variables are defined in Table 1. Demographic variables, age, income source, gender, and residence were also collected.

Yee-Loong Chong et al, (2010) there are four main independent variables, namely, perceived usefulness, perceived ease of use, trust, and government support. This study used all the above variables except for government support.

Table 1: Definition of Variables

Variable	***Conceptual (from Literature Review)***	***Operational***
Adoption	*Technology Acceptable Model theorizes that a technology that is easy to use, and if found to be useful will have a positive influence on the intended user's attitude which in tum increases intention towards using the technology that generates the adoption behavior (George & Kumar, 2013).*	*15. I intend to increase my use of internet banking in the future*
Perceived Usefulness	*Perceived usefulness is the belief of an individual in using technology which would enhance his/her performance (Bashir & Madhavaiah, 2014).*	*2. Internet banking is the future of banking* *3. Internet banking allows me more for other personal activities* *9. Internet Banking allows me to do all I want*
Trust	*Trust in a system refers to the enthusiasm of the consumer to be vulnerable to the service providers based on positive expectations. A bank needs to design online banking strategy that builds consumer trust by making them feel that they have a*	*10. Internet banking transaction is private and secure* *11. Transactions done through internet banking are fully processed in a secure environment*

	high degree of control of their banking transactions (Alwan & Al-Zubi, 2016).	*12. Internet banking keeps my personal information confidential*
Ease of Use	*Perceived ease of use refers to the belief of an individual in using technology with minimum or free of effort (Bashir & Madhavaiah, 2014).*	*1. My banking transactions are easier when using internet banking* *4. Internet banking makes communication with my bank much easier* *5. Internet banking is better than the traditional way of banking* *6. Internet banking is very easy to use* *7. Learning how to use internet banking is easy* *8. Internet banking website is clear and easy to navigate* *13. As long as I have internet access I will use internet banking* *14. My use of internet banking is affected by the cost of internet*

3.6.1 Dependent variable(s)

The dependent variable, adoption of online banking was adapted from (Yee-Loong Chong et al., 2010). This was based on the similarities that the study presented to this research and was therefore deemed applicable. Measuring attitudes, character, and behavior in people in research has been a challenge, and in response to addressing this difficulty, Likert developed a scale for measuring attitudinal scales. We see this scale being used in many studies as was the case with Yaghoubi & Bahmani (2010) were items were measured using a five-point Likert-type scale with anchors ranging from “strongly disagree” to “strongly agree”.

In the data collection tool, this variable was collected on an ordinal scale, however, for the analysis, it was transformed into a binary variable, where “yes” (1) was taken as “agreeing” or “strongly agreeing” to increase usage of internet banking in the future, and “no” (0) for the rest of the options on the scale (disagree, strongly disagree, neutral and don’t know).

In terms of banking, understanding adoption of online banking as a dependent variable allows for a better understanding of factors likely to contribute to the growth of online banking success in a developing country (Yee-Loong Chong et al., 2010). We also find the dependent variable adoption of online banking used by Koenaite, Chuchu & Villiers (2019) in their study the effect of mobile banking on the adoption of banking products and services in South Africa using the TAM.

3.5.2 Independent variables

For this study, the main predictor variables were perceived usefulness, perceived ease of use, and trust. The three were selected to assess how they related to the dependent variable, the adoption of internet banking, with the addition of age, gender, and income source.

Similar to the primary outcome variable, adoption, the independent variables captured on the Likert scale were transformed into binary outcomes, with “Don’t know”, “Strongly Disagree”, “Disagree” and “Neutral” as (0) and “Agree” and “Strongly Agree ” as (1).

For the independent variables ease of use, usefulness and trust; a series of questions were asked; ease of use- 8 questions, usefulness- 3 questions, and trust- 3 questions. Principle Component Analysis as used by Achia, Wangombe & Khadioli (2010) was also adopted and used to reduce the 14 variables to 3 main variables; ease of use, usefulness, and trust, that best represented the variables of interest. For each of the outcomes, one variable was predicted, following Kaisers’ stopping rule. The PCA is a multivariate statistical technique that was used to reduce the number of variables without losing too much information in the process. We find that Achia, Wangombe & Khadioli (2010) also used the same statistical technique.

The PCA technique achieved this by creating a fewer number of variables which explained most of the variation in the original variables. In this case, only one variable was retained for each of the three after the PCA was done. The new variables which were created were linear combinations of the original variables. The first new variable accounted for as much as possible of the variation in the original data. The demographic variables age (years), gender (male or female), and source of income (formal employment, private business, and other) were also included. Descriptive statistics were used to describe all the variables.

3.7 The data analysis model (statistical analysis)

Bivariate and multivariate logistic regression

At predictor variables; perceived usefulness, perceived ease of use, trust, gender and source of income were described using proportions as they were categorical variables, while age was described using mean and standard deviations because it was a continuous variable. Since adoption, the main outcome variable, was changed from ordinal to binary, logistic regression was used to test associations, between adoption and the three outcome variables trust perceived ease of use and perceived usefulness predicted after Principle Component Analysis was carried out and odds ratios were reported with their 95% confidence intervals. Statistical significance at $p<0.05$ was used to determine whether to reject or fail to reject the null hypotheses.

Bivariate logistic regression was conducted between the adoption of online banking and each of independent variables; age (years), gender (male/female), source of income (formal, private, other), perceived ease of use (predicted), trust (predicted) and perceived usefulness (predicted). Multivariate logistic regression was conducted to examine the relationship between the adoption of online banking and the set of independent variables. This analysis was conducted in STATA, version 13, using the logistic regression command “logistic,” thereby computing odds ratios. As such, odds ratios and their 95% CI were reported.

3.7.1 Data relevance to the analysis model

Logistic regression was used to test associations between adoption of online banking and other variables in the study such as age, income, gender, perceived usefulness, trust and perceived ease of use.

3.7.2 Limitations and assumptions of the analytic model

The outcome variable, adoption of online banking, was binary, hence the analysis was done using logistic regression. All the variables in the study, except age were captured as binary or categorical variables. Age was a continuous variable. The three independent variables of interest, perceived usefulness, trust and perceived ease of use were selected from literature. This study added the demographic variables to the analysis in order to gain more understanding of the population dynamics and how they influence adoption. There could be other factors that influence adoption that were not captured in this study, such as personality traits.

3.8 Descriptive results

This section provides an overview of the descriptive statistics.

3.8.1 Independent variable reporting

The independent variables included variables of interest; perceived usefulness, trust and perceived ease of use and the demographic variables. The variables were transformed from Likert scale ordinal variables, to binary variables (0/1 or yes/no). Table 2 describes these variables after the transformation.

Table 2: Description of Participants, n=478

Variable		Yes (%) strongly agree, agree	No (%) strongly disagree, disagree, neutral, I don't know
Adoption	I intend to increase my use of the internet banking in the future	380 (79.5)	98 (20.5)
Perceived Usefulness	Internet banking is the future of banking	383 (80.1)	95 (19.9)
	Internet banking allows me more for other personal activities	382 (79.9)	96 (20.1)
	Internet Banking allows me to do all I want	178 (37.2)	300 (62.8)
Trust	Internet banking transaction are private and secure	284 (59.4)	194 (40.6)
	Transactions are fully processed in a secure environment	260 (54.4)	218 (45.6)
	Internet banking keeps my personal information confidential	304 (63.6)	174 (36.4)
Perceived Ease of Use	My banking transactions easier when using internet banking	382 (79.9)	96 (20.1)
	Internet banking makes communication with bank easier	331 (69.3)	147 (30.7)
	Internet banking is better than traditional way of banking	348 (72.8)	130 (27.2)
	Internet banking is very easy to use	348 (72.8)	130 (27.2)
	Learning how to use internet banking is easy	320 (66.9)	158 (33.1)
	Internet banking website is clear and easy to navigate	225 (47.1)	253 (52.9)
	As long as I have internet access I will use internet banking	366 (76.6)	112 (23.4)
	My use of internet banking is affected by the cost of internet	394 (82.4)	84 (17.6)

Out of 478 participants in this study, 79.5% mentioned they had intention to adopt internet banking in future. However, only 59.4% felt their banking transactions were secure and private. Most of the participants (82.4%) felt their use of internet banking was affected by the cost of internet.

Demographic information

The data revealed that of the 478 participants enrolled into the study. Table 3 provides an overview of the demographic characteristics of the study participants.

Table 3: Demographic Characteristics (n=478)

Variable		Frequency
Age	*Range*	*44 (19-63)*
	Mean	*26*
	Standard Deviation	*4.648*
Gender	*Male*	*253 (53.0%)*
	Female	*225 (47.0%)*
Source of Income	*Formal*	*158 (33.0%)*
	Private	*138 (29.0%)*
	Other	*182 (38.0%)*
Environment	*Urban*	*469 (98.2%)*
	Peri-Urban	*7 (1.4%)*
	Rural	*2 (0.5%)*
Total		***478 (100%)***

The average age of the respondents was 26 years old, with a range of 19 to 44 years old. There slightly more men than women in the sample, with most of the participants mentioning that they lived in an urban environment.

A cross tabulation of selected independent variables representing trust, perceived usefulness and perceived ease of use were selected and described against the demographic variables. Table 4 provides an overview of this cross tabulation.

Table 4: Demographic characteristics against adoption and selected trust, perceived usefulness and perceived usefulness variables (%) n=478

Demographics (%)		Trust		Perceived usefulness		Perceived ease of use	
		Internet banking transaction are private and secure		Internet banking is better than traditional way of banking		Internet banking is very easy to use	
		Yes	No	Yes	No	Yes	No
Age	18-25	44.9	55.1	27.4	72.6	29.5	70.5
	26-30	28.6	71.4	20.7	79.3	19.3	80.7
	31-35	40.0	60.0	40.0	60.0	20.0	72.0
	36-40	64.3	35.7	50.0	50.0	35.7	64.3
	46+	57.1	42.9	57.1	42.9	71.4	28.6
Income	Formal	29.3	70.7	20.7	79.3	20.7	79.3
	Private	40.3	59.7	28.1	71.9	28.1	71.3
	Other	46.7	53.4	30.0	70.0	30.0	70.0
Gender	Male	40.2	59.8	24.7	75.3	27.9	72.1
	Female	41.0	59.0	30.0	70.0	26.4	73.6

**Yes=strongly agree, agree. No=strongly disagree, disagree, neutral, I don't know*

Gender

Perceived usefulness and gender were analyzed. Female respondents perceived online banking technology useful almost as much as the male respondents who were 81% in the affirmative while 78% of the females agreed or strongly agreed. For trust and gender, both male and female respondents across the age distribution generally had the same level of trust in online banking (at 60% and 59% respectively). Perceived ease of use against gender revealed that female respondents perceived online banking technology as useful as male respondents with 64% for females against a score of 62% for males.

Age

The cross tabulation between perceived usefulness and age showed that respondents between the ages of 18 to 40 perceived online banking technology as being useful with most of the respondents falling in the category of either agree or strongly agree. The perceived ease of use age cross tabulation revealed that respondents between the ages of 18 to 40 perceive online banking technology as useful with most of the respondents falling in the category of either agree or strongly

agree. However 43% with only 29% agreeing respondents with the age range 41 and above indicated that they disagree.

Income

Perceived usefulness against income showed that all respondents across the three income distributions of formal employment, private business and other perceive online banking as useful, and they all had a sense of trust in online banking with the highest number coming from the respondents in formal employment. It is also worth noting that 30% of the responders not in formal employment or private business indicated neutrality on the question. Finally, the perceived ease of use and income cross tabulation revealed that all respondents across the three income distributions of formal employment, private business and other perceived online banking as being easy to use.

3.8.2 Dependent variable reporting

Adoption of online banking, the dependent variable, was reported at about 80 percent; indicating that proportion of individuals that agreed with the statement "I intend to increase my use of the internet banking in the future". Adoption was also described in terms of demographic variables. Table 5 shows this cross tabulation.

Table 5: Demographic characteristics against adoption (%) n=478

Demographics		*Adoption*	
		I intend to increase my use of the internet banking in the future	
		Yes	No
Age	*18-25*	20.9	79.1
	26-30	14.2	85.7
	31-35	32.0	68.0
	36-40	35.7	64.3
	46+	57.1	42.8
Income	*Formal*	16.4	83.6
	Private	17.3	82.7
	Other	24.7	75.3
Gender	*Male*	21.5	78.5
	Female	19.4	80.6

**Yes=strongly agree, agree.*

3.9 Statistical inferential analysis reporting

This section provides the results of the inferential analysis, using logistic regression. This type of regression was suitable for the data as the outcome variable, adoption, was taken as a binary outcome (adoption or no adoption).

Table 6: Bivariate regression analysis of adoption factors for online banking users (n=478)

Characteristic		*c**OR** (95%CI)*	***p** value*
Age		*0.9 (0.9,1.0)*	*0.075*
Gender	*Male*	*1*	*Ref*
	Female	*1.1 (0.7,1.7)*	*0.565*
Income	*Formal*	*1*	*Ref*
	Private	*0.9 (0.4,1.8)*	*0.851*
	Other	*0.6 (0.3,1.1)*	*0.082*
Perceived Usefulness		*2.4 (1.9,2.8)*	*<0.001**
Trust		*1.9 (1.6,2.3)*	*<0.001**
Ease of Use		*1.9 (1.6,2.2)*	*<0.001**

*statistically significant at 95% CI

In the crude analysis (table 7), a unit increase in perceived usefulness (OR 2.4, p<0.001), trust (OR 1.9, p<0.001) and ease of use (OR 1.9, p <0.001) increased the odds of adopting internet banking, and these relationships were *not* statistically significant.

Results also show that an increase in age reduced the likelihood of adoption (OR 0.9, p = 0.075) and that women were more likely to adopt internet banking compared to men (OR 1.1, p=0.565). In addition, holding formal employment constant, respondents engaged in private businesses OR 0.9, p=0.851) and those with other sources of income (OR 0.6, p=0.082) were less likely to adopt internet banking. However, these relationships were *not* statistically significant.

Table 7: Bivariate and multivariate Regression analysis of adoption factors for online banking users (n=478)

Characteristic		*cOR 95% CI, pvalue*	*aOR (95% CI), **p**value*
Age		*0.9 (0.9,1.0), 0.075*	*0.9 (0.9,0.1), 0.149*
Gender	*Male*	*1*	*1*
	Female	*1.1 (0.7,1.7), 0.565*	*1.4 (0.8,2.5), 0.205*
Income	*Formal*	*1*	*1*
	Private	*0.9 (0.4,1.8), 0.851*	*1.1 (0.4,2.5), 0.849*
	Other	*0.6 (0.3,1.1), 0.082*	*0.6 (0.3,1.4), 0.254*
Perceived Usefulness		*2.4 (1.9,2.8), <0.001**	***1.5** (1.2,1.9), 0.001**
Trust		*1.9 (1.6,2.3), <0.001**	***1.4** (1.2,1.7), 0.001**
Ease of Use		*1.9 (1.6,2.2), <0.001**	***1.4** (1.2,1.7), <0.001**

**statistically significant at 95% CI, Likelihood Ratio: 140.70, Pseudo R^2: 0.29, Hosmer-Lemmeshow Chi^2 0.76*

In the multivariate logistic regression (table 6), the results were slightly different, with the addition all the variables into the regression model. The results show that, holding age, gender and income stable, there was evidence that a unit increase in perceived usefulness (OR 1.5, p<0.001), trust (OR 1.4, p<0.001) and perceived ease of use (OR 1.4, p <0.001) increased the odds of adopting internet banking, and these odds were statistically significant. Therefore, we reject all three null hypotheses and conclude that there are significant relationships between the intentions to adopt online banking on one hand and trust, perceived usefulness, perceived ease of use on the other hand.

The Hosmer-Lemmeshow test was used to assess the goodness of fit for the logistic regression undertaken in this study. This tests assessed how well the data fit the final model. This model is best used for binary response outcomes, calculating if the observed event rates match the expected event rates in the population, using a Chi^2 test, producing a Chi^2 value and a p value. For this analysis, the Chi^2 probability 0.76 was produced, indicating that there was insufficient evidence to say the model is not a good fit.

3.10 Summary

The results show that perceived usefulness of online banking, perceived ease of use of the online banking platforms and finally, customer trust in bank systems influence the customers' intention to adopt online banking. While we found that age reduced the likelihood of adoption of internet banking and that women were more willing to adopt it than the men, there was insufficient evidence to support these associations. Based on the findings, we therefore *fail to* reject all three hypotheses (H_1, H_2 and H_3).

Summary Results			
Hypothesis		**aOR 95% CI, pvalue**	**Decision**
Perceived Usefulness	*H_0: There is no relationship between perceived usefulness and the intention to adopt online banking.*	1.5, p<0.001	Fail to reject null hypothesis
Perceived Ease of Use	*H_0: There is no relationship between perceived ease of use and the intention to adopt online banking.*	1.4, p<0.001	Fail to reject null hypothesis
Trust	*H_0: There is no relationship between trust and the intention to adopt online banking.*	1.4, p <0.001	Fail to reject null hypothesis

Chapter 4 - Discussion, Recommendations and Conclusion

4.1 Introduction

This study aimed to examine customer perceptions and attitudes towards online banking in Zambia concerning adoption using the Technology Acceptance Model (TAM). Research has shown that TAM is one of the most cited models in studying acceptance and behavioural attitude towards the adoption of technology. Through technology, the internet has revolutionised banking; however, despite significant growth, the level of utilisation in Zambia is low.

The findings from this study provide support for the theoretical model. This chapter will highlight the main results of the study and make recommendations. It will also provide a review of the theoretical implications and the practical application of the research. Finally, the chapter will also provide the limitations of the study and the areas for future research.

4.2 Discussion of the results

The results of this study show that perceived usefulness, perceived ease of use, and trust showed significant positive relationships with the adoption of online banking.

Perceived usefulness had a positive effect on the intention to adopt online banking ($p<0.001$). This result implied that customers who perceived online banking as usefull were more likely to adopt online banking. This finding is in agreement with Yee-Loong Chong et al. (2010) who stated that perceived usefulness was a significant determinant to predicting intention. It is also in line with Fawzy & Esawai (2017) who found that customers will use internet banking if they perceived it as useful and helpful. However, there are other studies which found that perceived usefulness did not influence adoption (Hosein, 2011). Suggesting that if consumers are not aware of how technology improves performance, they are less likely to adopt online banking.

This study has revealed that perceived ease of use also had a positive effect on the intention to adopt internet banking ($p <0.001$). This finding entailed that customers

who believed in using online banking technology with minimum or free effort were more likely to adopt online banking, suggesting that the online banking interface perceived as easy to use increases the chances of adoption of online banking.

This result is in line with TAM, which states that perceived ease of use is a person's strong belief that use of the technology will be free of effort (Lee, 2009). This is further supported by Khan, Khan & Xiang (2017) who agree that perceived ease of use can bear a significant impact on an individual's intention to use technology.

Finally, this study found that trust was significantly associated with intention to adopt online banking ($p<0.001$). This relationship suggests that customers increasing awareness in the security of online banking is likely to increase the intention to adopt online banking. The findings could also mean that the more the customer perceived internet banking as secure, the more likely they are to adopt online banking. This is also supported by Yee-Loong Chong et al, (2010) who in their study in Vietnam, found that users were cautious about the use of online banking. They went further to state that trust was an essential factor in influencing consumers' intention to adopt online banking. The findings in this study are in agreement with this position found in the Vietnamese research findings and also in line TAM which states that trust is a critical factor in influencing the online banking acceptance and that the lack of it is a barrier to adoption (Yousefi & Nasiripour, 2015).

For this study, the findings have provided adequate support that the Zambian bank customer is willing and ready to accept and adopt online banking technology when they perceive internet banking technology as useful, easy to use and trustworthy.

4.3 Recommendations

From this study, the following recommendations can be made;

4.3.1 Banks must invest in making online banking platforms easy to use and be more user-friendly. From the results, perceived ease of use plays a significant role in the adoption, and therefore, the focus must be on ensuring that the technology is both easy to understand and navigate. A more detailed approach should be taken to educate customers on how to use the platform during the on boarding

stage. Banks must avoid falling into the risk of assuming that all customers fully understand how to use online banking. Banks could reach out and ask clients to show where they face most difficult with online transactions.

4.3.2 Banks need to make sure internet banking continues to be both useful and convenient as the chances of adoption and use will be higher. Banks should increase the use and capability of online banking technology and adequately inform and educate customers about online banking. Banks should continue to develop new products and services that are suitable for online banking. Banks must market and publicize more to their customer base about the current system capabilities as this will increase usage and adoption. Additionally, Banks must spend more on research and customer insight because it is important to understand the type of customers they are targeting in order for them to devise effective marketing strategies (Ashraf, Thongpapanl & Auh, 2014).

4.3.3 Banks need to improve the security systems as well as assure customers that online banking is safe and secure. The assurance of a secure transaction environment will enhance loyalty and retention. Customers need assurance that the security features of online banking are adequate, monitored, and improved. Trust is a fundamental aspect of adoption, and banks must ensure that there is no breach of this trust as this would immediately be a deterrent to both utilisation and new customer adoption. Further, financial literacy campaigns are critical to alleviating the security concerns that some customers may hold. In order to achieve this, continuous investment in technology is required both to make the systems more comfortable to use and fraud-free.

4.4 Theoretical implications

TAM was developed to study how an individual's perceptions about the usefulness, ease of use, and attitude towards the use of a specific technology affect its future use. The research model developed for this study used Trust in addition to the two common TAM constructs of perceived usefulness and perceived ease of use. The findings of this study are in line with the TAM model as the adoption of internet

banking is dependent and highly associated with perceived usefulness and perceived ease of use of the technology. While TAM stressed the importance of the attitude of the customer towards the technology, this study added the Trust variable, which suggests that adoption of online banking would highly depend on the level of trust that users have in the technology and the entire banking system.

The findings of the research are in line with the theory and therefore, do not contradict TAM but instead provides additional support to the use of the three constructs in assessing behaviour leading to adoption.

4.5 Practical implications

The growth of online banking in Zambia is dependent on the availability of internet access and further development of online banking applications for users. This study has shown that the customers are willing to adopt online banking, provided that the benefits are explained fully through marketing or financial literacy programs. It is also critical that security and privacy concerns that affect the level of trust in such systems are addressed and assurance provided that data will be secure and confidential. The banking industry in Zambia must invest in fraud and prevention and detection applications to reduce the occurrence of fraudulent activities.

Online banking reduces operational costs significantly if fully adopted. There is an opportunity for Zambian banks to leverage off the same kind of investment as in developed countries. Banks must ensure that online banking is a key strategic agenda for both operational and customer-centric focused growth.

The results and findings of this research strongly encourage commercial banks to invest more in solutions that drive implementation and usage of internet banking and how to improve services seeing that the market is ready, willing and open to the systems. Zambian Banks can plan their strategies based on these research findings.

The fact that perceived usefulness and perceived ease of use and trust are not factors in adopting online banking is confirmation that the Zambian consumer is ready for online banking and commercial banks must investigate further what

additional services they can provide and what improvements can be made to the existing platforms.

4.6 Limitations of the study

Firstly, this study was limited to Lusaka, the capital city and commercial hub of Zambia and while it is extensively representative of the diverse local demography and is cosmopolitan, some sections of the Zambian population may not have been catered for in the study.

Secondly, while the parameters of the research; perceived usefulness, perceived ease of use and trust, were useful in understanding factors that influence intention to adopt internet banking, there could be other factors not captured in this study that could influence the intention to adopt online banking.

The generalizability of the study findings is limited, as the study analysed data collected from four malls only, which could have facilitated the selection of customers with similar traits. However, the information obtained from this study is still useful to understand the factors that influence the intention to adopt online banking as the right statistical analysis was done in order to increase the internal validity of the findings. These results are also a basis for research on adoption of online banking.

4.7 Areas for future research

Future research could consider looking at a broader population sample and not the mostly urban sample as used in this study. It would also be of value to include in the sample a wider range of banking halls to select customers from as this would increase the variability of the study. Additionally, it would also be vital to investigate adoption at various levels of demographic information to provide more detail and what each component of demographics would respond. Furthermore, since the research was limited to the Zambian situation, future research could include other developing countries.

The study could not have covered all the factors that influence customer decision making concerning online banking. Future research could investigate other areas of human behaviour and attitudes toward online banking. Research has also shown that culture has a strong influence on how a community of people makes decisions. Therefore, future research could look into the influence of socio-cultural norms, values, and beliefs on technology adoption. This may provide additional context that may be vital in understanding the reasons behind the low adoption of online banking in developing countries.

This study focused on only one model, the Technology Acceptance Model. Future research may employ other models such Theory of Planned Behaviour, which brings in the concept of perceived behavioural control. Alternatively, a combination of both TAM and TPB could be used in a comparative study.

4.8 Summary

This study examined customer behaviour towards online banking on online banking in Zambia. The results of this study show that all constructs perceived usefulness, perceived ease of use, and trust showed significant positive relationships with the adoption of internet banking.

Key recommendations have been made such as the need for banks to focus on making online banking platforms easier to use and navigate while ensuring that the full capability of the system and the efficiencies that come with it are explained to users. Banks must also ensure that trust is enhanced through ensuring that security features are continuously improved.

The findings of this study are aligned to TAM and do not contradict the theory in assessing behaviour leading to adoption despite some limitations noted that have been noted and can be improved in future research.

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Appendices

Appendices A (Research Questionnaire)

Internet banking Information

1	My banking transactions are easier when using internet banking	☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree	☐ Don't Know
2	Internet banking is the future of banking	☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree	☐ Don't Know
3	Internet banking allows me more time for other personal activities	☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree	☐ Don't Know
4	Internet banking makes communication with my bank much easier	☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree	☐ Don't Know
5	Internet banking is better than traditional way of banking	☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree	☐ Don't Know
6	Internet banking is very easy to use	☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree	☐ Don't Know
7	Learning how to use internet banking is easy	☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree	☐ Don't Know
8	Internet banking website is clear and easy to navigate	☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree	☐ Don't Know
9	Internet Banking allows me to do all I want	☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree	☐ Don't Know
10	Internet banking transactions are private and secure	☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree	☐ Don't Know
11	Transactions done through internet banking are fully processed in a secure environment	☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree	☐ Don't Know
12	Internet banking keeps my personal information confidential	☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree	☐ Don't Know
13	As long as I have internet access I will use internet banking	☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree	☐ Don't Know
14	My use of internet banking is affected by the cost of internet	☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree	☐ Don't Know
15	I intend to increase my use of the internet banking in the future	☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree	☐ Don't Know

Participant information

I am Aged :	☐ 18 to 25	☐ 26 to 30	☐ 31 to 35	☐ 36 to 40	☐ 41+	
Sex :	☐ Male	☐ Female				
Source of funds and Income:	☐ Formally Employed	☐ Private Business	☐ Other			
Environment:	☐ Urban	☐ Peri-Urban	☐ Rural			
Location/ Town	☐ Lusaka	☐ Livingstone	☐ Kabwe	☐ Ndola	☐ Chongwe	☐ Siavonga
Name of Town	_____					

Appendices B (Ethics Committee Approval Documents)

RHODES UNIVERSITY

Grahamstown • 6140 • South Africa

DEPARTMENT OF COMMERCE
Tel: [+27] 046 603 8612
Fax: [+27] 046 603 8613
E-mail: [x.xxxxx]@ru.ac.za

10th August 2018

[Address of Institution]

Dear [Name]

Re: Invitation to participate in research study

You are invited to participate in a research study entitled **The Effects of Technology Acceptance and E-Trust on Online Banking in Zambia.**

The aim of this research is to determine customer acceptance of internet banking technology in Zambia. The study will focus on customer behaviour in relation to the growing technology and digital marketing strategies. Your participation and cooperation is important so that the results of the research are accurately portrayed.

The research will be undertaken through a questionnaire. The data to be collected from this research will be primary data. Your identity and that of your institution will be treated with complete confidentiality. The collection of this data will require from each participant about 10 minutes to complete.

We will provide you with all the necessary information to assist you to understand the study and

explain what would be expected of you (the participant). These guidelines would include the risks, benefits, and your rights as a study subject. Furthermore, it is important that you are aware that this study has been approved by a Research Ethics Committee of the university.

Participation in this research is completely voluntary and this letter of invitation does not obligate you to take part in this research study. To participate, you will be required to provide written consent that will include your signature, date and initials to verify that you understand and agree to the conditions. Please note that you have the right to withdraw at any given time during the study without penalty.

Thank you for your time and I hope that you will find our request favourable.

Yours sincerely,

.

Collins Moonga Hamusonde
Research Student

Professor Deon Nel
Supervisor

RHODES UNIVERSITY

INFORMED CONSENT FORM

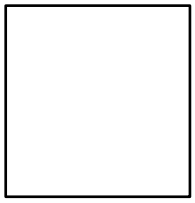
Department of Commerce

Research Project Title:	**The Effect of Technology Acceptance Model and Trust on Online Banking in Zambia.**
Principal Investigator(s):	Collins Moonga Hamusonde

Participation Information
• I understand the purpose of the research study and my involvement in it • I understand the risks of participating in this research study • I understand the benefits of participating in this research study • I understand that I may withdraw from the research study at any stage without any penalty • I understand that participation in this study is done on a voluntary basis • I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential • I understand that I will receive no payment for participating in this study

Information Explanation
The above information was explained to me by: ....
The above information was explained to me in: ☐English ☐Bemba ☐Lozi ☐Nyanja ☐Tonga

Voluntary Consent
I, [ ], hereby voluntarily consent to participate in the above-mentioned research.

	OR, Tick 	Date: / /

Investigator Declaration	
I, [ ], declare that I have explained all the participant information to the participant and have truthfully answered all questions asked me by the participant	
	Date: / /

Translator Declaration	
I, [ ], declare that I translated a factually correct version of: 1. all the contents of this document 2. all questions posed by the participant 3. all answers given by the investigator In addition, I declare that all information acquired by me regarding this research will be kept confidential.	
	Date: / /

Notes to Researcher:

- The informed consent must explicitly **exclude** minors and other vulnerable populations that need bystanders

RHODES UNIVERSITY
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ETHICAL STANDARDS: RESEARCH PROTOCOL

Departmental Research Ethics Committee Review (Official Use Only)	
Track Number:	.... YEAR DEPARTMENT NUMBER
Date Received:	
Resolution:	☐ Approved ☐ Refer to Ethical Standards Committee
Resolution Date:	
Authorized by:	

Instructions

Any project in which **humans** are the subject of research requires completion of this form and submission, for approval, to the appropriate **Departmental Research Ethics Committee** or where such committee does not exist or cannot unanimously approve the research protocol, to the University's **Ethical Standards Committee**

Note: Ethical clearance is required **before** any research participants are involved or consulted!

Please read the following documents:

1) Ethical Guidelines: Human Subjects

2) Ethical Standards Policy: Human Subjects

3) Ethical Standards Procedures: Human Subjects

Available from http://www.ru.ac.za/research/research/ethics/

How to fill in this form:

1) Complete all sections in typescript. Handwritten forms will **NOT** be accepted.
2) Append all necessary documentation.
3) Hand the signed copy and all attachments to the Departmental Research Committee representative.

General Particulars	
Title of project:	**The Effects of Technology Acceptance and Trust on Online Banking in Zambia**
Name of principal investigator(s):	**Collins Moonga Hamusonde**
Contact details:	Institution: **Student** Department: **Rhodes Business School** Address: **Barclays Life Zambia, 2nd Floor, Kafue House, Lusaka, Zambia** Email: **cmhamusonde@yahoo.com** Telephone: **+260977881937**
Name of supervisor(s):	**Professor Deon Nel** D.nel@ru.ac.za
Contact details:	Department: **Business School** Address: **Top Floor Rhodes University Theatre Building. Cnr. Somerset and Prince Alfred Street. Grahamstown** Email: **D.nel@ru.ac.za** Telephone: **046-603-8009**

Research type:	**National**, **Student Research Masters**
Funding:	**No Funding**
Purpose of research:	**Academic**

Methodology

Briefly state the methodology and the procedures in which participants will be asked to participate:

The data for this study will be collected through a survey that will be conducted in 6 towns of Zambia representing both urban and semi urban communities in Lusaka, Livingstone, Ndola, Kabwe Chongwe and Siavonga. The population of customers with bank accounts in Zambia is currently 5.2 million, a sample size of 1000 participants will be drawn for questionnaire responses. The questionnaire aims to collect data on behavioral factors that may impact the acceptance and use of online banking technology and will be analyzed using quantitative methods.

Collected data will be kept on a secure hard drive and personal laptop for the duration of the research and kept secure thereafter for a minimum of 5 years. This data will only be used for purposes of the research and no other external parties will be privy to it.

State the minimum and maximum number of Participants needed:

Min: **300**
Max: **1000**

Justify the numbers in terms of the methodology chosen and proposed data analysis requirements:

The large sample size will provide a platform for more detailed statistical analysis and enhance the validity of the findings. The selected populations for the sample include both urban and rural towns focusing on business and commercial, mining and tourist towns

Information to Subject

What information will be afforded to participants **before** they consent to participate?

Questionnaire distributed will contain an introduction with detailed summary of the research. The participants will also be allowed to ask any questions if they do not understand to ensure informed consent. The participants will be allowed to engage research assistants for further clarity in person as or before they fill in the questionnaire

Questionnaire distributed will contain an introduction with detailed summary of the research. The participants will also be allowed to ask any questions if they do not understand to ensure informed consent. The participants will be allowed to engage research

Who will provide this information?

Information will be provided in person by Data Collectors

Will the information provided be complete and accurate? **Yes**
If NO, describe the nature and extent to which it will not be complete:

Participant Groups (Sample)

Are particular characteristics of any kind required in the participant group (e.g. age, cultural derivation, background, physical characteristics, disease states, etc.)? **Yes**
If YES, specify the characteristics:
Age, Sex , source of income, environmental location and town

Are participants drawn from Rhodes student body at large? **No**

Are Participants drawn from specific groups of Rhodes students? **No**
If YES, specify the groups:

Are Participants drawn from a school population? **No**
If YES, identify school:

Are Participants drawn from an institutional population (e.g. Hospital, Prison, Mental Institution)?

No

If YES, identify institution:

Participants will be drawn randomly across the selected towns

Will any records be consulted for information? **No**

If YES, specify source of records:

Will participants know their records are being consulted? **Not applicable**

State how these records will be obtained and whose permission is required:

Are all participants over 18 years of age? **Yes**

If NO, justify the inclusion of minors:

Risks and Benefits of Project

Is there any risk of harm, embarrassment or offence, however slight or temporary, to the participant, to third parties, or to the community at large? **No**

If YES, specify:

Are all risks reversible? **Yes**

If NO, specify:

Are remedial measures available, if risks are not reversible? **Not applicable**

If YES, specify:

Has the person administering the project previous experience with the particular risk factors involved? **Yes**
Are any benefits expected to accrue to the participant personally (e.g. improved health, mental state, financial, etc.)? **No** If NO, specify:
Will you be using equipment of any sort? **No** If YES, specify:
Will any article of property, personal or cultural, be collected in the course of this project? **No** If YES, specify:

Consent of Participants
Is consent to be given in writing? **Yes** If NO, state reason why not:
Do any participants suffer from a legal disability preventing them from giving effective informed consent (e.g. under 18 years, declared insane by a court of law, unconscious, etc.)? **No** If YES, indicate what measures will be taken to obtain informed consent:
Do any participants operate in an institutional environment which may cast doubt on the voluntary aspect of consent? **No** If YES, specify:

Will participants receive remuneration for their participation? **No** If YES, state the basis on which remuneration is calculated, and indicate what measures have been taken to ensure that it cannot be considered a persuasive incentive:
Do you require consent of an institutional authority for this project? **No** If YES, specify:

Privacy, Anonymity and Confidentiality of Data

Are provisions made to protect participant's rights to privacy and anonymity and to preserve confidentiality with respect to data? **Yes** If YES, specify: **Participants will not be allowed to disclose their names and all personal data collected will not be used for public purposes**
Will mechanical methods of observation be used (e.g. one-way mirrors, recordings, videos, etc.)? **No** If YES, specify:
Will participants' consent to such mechanical methods of observation be obtained? **Not applicable** If NO, give reasons:
Will data collected be stored in any way? **No** If YES, specify: 1) by whom, 2) how many copies, 3) for how long, 4) for what reasons, and 5) how will subject's anonymity be protected:

Will stored data be made available for re-use? **No**
If YES, how will participants consent be obtained for such re-usage:

Will any part of the project be conducted on private property (includes shopping centres)?

Yes

If YES, state how consent of property owner is to be obtained:

Data collectors will request for permission from the respective institutions prior to engaging Participants

Feedback

Will feedback be given to participants? **No**

If YES, state whether this is to be given to each individual immediately after participation; to each participant after the entire project is complete; to all participants in a group setting; or other manner and specify whether feedback will be written, oral or by other means:

Summarized

If you are working in a school or other institutional setting will you be providing teachers, parents, school authorities or equivalent a copy of your results and/or report? **No**
If YES, specify:

Declaration

If any changes are made to the above arrangements or procedures, we will bring these to the attention of the chairperson of the ethical standards committee or appropriate Departmental Human Ethics Committee.

The undersigned declare themselves accountable to the ethical standards committee for conducting this research project in the manner herein described and in accordance with the spirit of the ethical guidelines of this university. We undertake to assume responsibility to

advise the ethical standards committee promptly of any deviations, waivers, irregularities or harm occurring during the conduct of this research project.

Principal investigator	Supervisor
Signature: Name: **Collins Moonga Hamusonde** Date: **12 September 2018**	Signature: Name: **Professor Deon Nel** Date: **12 September 2018**

Appendices

In order to avoid delays in the processing of this application, please ensure that all the appropriate information (if applicable) is attached to your application:

1) Research instruments (e.g. questionnaires, interview questions, etc.)
2) Informed consent form
3) Written information given to participants prior to participation (e.g. invitation to participate)

Where applicable, institutional permissions to use data should only be obtained after ethical clearance has been granted.