THE USE OF ICT BY SME'S IN ZAMBIA TO ACCESS BUSINESS INFORMATION SERVICES AND INVESTMENTS: BARRIERS AND DRIVERS

MARTIN MWILA

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DECLARATION

I, Martin Mwila, do declare that this dissertation is my own work which has not been submitted for a degree at this, or any other university.

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APPROVAL

The dissertation by Martin Mwila is approved as fulfilling the requirements for the award of the Master of Engineering (Meng) in Information Communication Technology Regulation, Policy and Management.

Examiner 1 ..... Signature ……. Date.....

Examiner 2 ..... Signature …… Date.....

Examiner 3..... Signature ……. Date.....

Chairperson Board of Examiners ..... Signature …… Date.....

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ABSTRACT

The research aimed at answering key questions regarding the use of ICTs amongst SMEs in their businesses with an analysis and consideration of the possible factors that enable ICTs to be valued, as drivers and the possible factors that deter them not to be recognized as business development agents to be the barriers. The research was conducted on a sample of 60 SMEs with no formal business registration and 40 SMEs with formal business registration with a response of 76.7% and 87.5% respectively. Results disclosed that ICTs are a major aspect in business operations, formally and informally with the major drivers happening to be the reduction in cost and ease of doing business. The major challenges were the expense at which ICTs come with and the poor ICT infrastructure. There is a relation between the investment in ICTs in businesses with the increase in productivity as 67.04% of the respondents confirming the effect of implementation. The study recommends that Government fully implements the framework for ICTs laid in its Seventh National Development Plan (7NDP) to make ICTs available for socio-economic development through infrastructure development, reduction on taxes laid on ICT related goods and through Public-Private Partnerships (PPPs) that seek to enhance the communication.

Key words: Small and Medium Enterprises (SMEs), Drivers, Barriers, Information Communication Technologies (ICTs)

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DEDICATION

I dedicate this paper to my wife Malambo and daughter Wangwe for the sacrifice made and to the whole family. To my late mother, 20 years after her passing on. Lastly and importantly to the almighty God who has blessed me with such opportunities.

Martin Mwila

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS

ARPU	Average Revenue Per User
B2B	Business to Business
B2C	Business to Consumer
CEC	Copperbelt Energy Corporation
CDMA	Code Division Multiple Access
e-Banking	Electronic Banking
e-Commerce	Business over the Internet
e-Cards	Electronic Cards
e-Government	Electronic Government Operations
e-Payments	Electronic Payments
e-Transactions	Electronic Transactions
Government	Government of the Republic of Zambia
ICT	Information Communication Technology
MINs	Middle Income Nations
MNO	Mobile Network Operator
PACRA	Patents and Company Registration
Parliament	Parliament in the Republic of Zambia
RoI	Return on Investment
SME	Small and Medium Scale Enterprises
SNDP	Sixth National Development Plan
TAM	Technology Acceptance Model

TDMA	Time-division multiple access
UTAUT	Unified Theory of Acceptance and Use of Technology
ZICTA	Zambia Information and Communication Authority
ZNDC	Zambia National Data Centre
ZRA	Zambia Revenue Authority
3G	Third Generation of wireless mobile telecommunications technology
4G	Fourth Generation of wireless mobile telecommunications technology
5G	Fifth Generation of wireless mobile telecommunications technology
7NDP	Seventh National Development Plan

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Today's business world has been deeply influenced by Information and Communication Technologies (ICT) and the application of ICT among business is widespread. ICT is rapidly changing global production, work, business methods, trade and consumption patterns between enterprises and consumers (Isaac, 2014). Small businesses are increasingly using and adopting information and communication technology due to their cost-effectiveness and affordability. The use of ICT can improve business competitiveness with internet providing numerous opportunities for SMEs to compete equally with large corporations.

Zambia like most African countries was categorized as a developing nation which was growing to enhance its status and welfare through most sectors that support the development. As such, Governments in most of the development countries, Zambia inclusive, were looking at ways that accelerate the economic growth of the countries by identifying the key areas that prove to be important in the growth. One of the common factors was that, SME's account for 60-70% of the workforce in the developed countries (Asta Tarutė, 2013). SMEs are responsible for sustainable growth through job creation, development of entrepreneurial skills and contribute significantly to export earnings (Mwika, 2018). This meant that unlike the case for developing countries in which most of the workforce was provided by the Government, employment in more developed economies was provided for by the private sector, through Small Medium Enterprises (SMEs).

Implementing this would mean that the pressure on the Zambian Government to provide employment would be reduced and that the only major role of the Government would be to provide for policies and regulations, conducive enough to support the existence of these enterprises. Furthermore, employment meant a larger tax base for the revenue authorities that could be used to enhance and upgrade the various social and economic amenities. For business to be effective, there needs to be driving forces that make it easy to conduct. Among the main business forces was the application of Information and Communication Technologies (ICTs) to conduct business among SME's and their trade.

1.2 Problem Statement

Most SMEs would not adopt e-commerce if the benefits do not outweigh the costs of developing and maintaining the system. SMEs were generally concerned about the costs of establishing and maintaining e-commerce since they generally suffered from budget constraints and were less sure of the expected returns on the investment (Development, 2004).

Technological developments played an important role in the realization of the goods and services that manifested itself through activities that were digitally more intensive. For this reason, organizations believed that ICT was a way to fight competition by improving productivity, profitability and quality of operations. This was because their innovations had provided opportunities to improve their processes and develop new business models and applications. In addition, ICT also helped companies to increase their potential for competitive advantage, enabling them to carry out primary and support activities, either at a lower cost or a path that led to differentiation and at a higher price (Omar A. León, 2016). External pressure from other trading partners was one of the significant predictors that had strong influence on SMEs in adoption and use of technology according to (Ardjouman, 2014). The author argued that without this external pressure, many SMEs owners would perceive adoption and use of technology as a waste of resources. This had an indication that many SMEs were not fully utilizing the technology in doing business. Dependency on supplier/customer was closely related to external pressure to adopt and use technology. The author notes that when a major customer or supplier adopted a new technology, the SME owner were more likely adopt and use the same technology.

SMEs were not only important for employment creation but were also regarded as the driver behind economic diversification and because of this, efforts were concentrated towards the development of these enterprises. However, the pace of development of SMEs is very slow and diminishing. In spite of their many contributions, SMEs are “plagued by high failure rates and poor performance levels”. Regardless of their significant contribution to the country’s economy, researches had revealed a high failure rate, estimated to be above 80% in SMEs across all industries in developing countries (Majama, 2017).

Also, the tools for ICTs did not seem to be very friendly because of the computer literacy levels of the people, lack of willingness to adopt ICTs because the content was mainly presented in English other than common local languages, privacy issues and usability concerns (Bwalya, 2015).

Many SME owners have only basic levels of education, especially in rural areas. About half of SMEs in rural areas had a primary education and about 45 percent had a secondary education. Very few in rural areas had any vocational training and virtually none in urban or rural areas had a university education (Survey, 2010). Rural areas produced most of the agricultural products in Zambia and smallholder farmers accounted for 90 percent of national maize production in Zambia. However, small-scale farmers faced a great deal of challenges accessing formal markets. Most were in remote rural areas with poor infrastructure –especially roads– and little access to important price information (Programme, 2015). SMEs operated in these areas but with the lack of knowledge in ICTs, their trading was not helped as they conducted business in the traditional means which consumed time and money. A prime example which was cited was the introduction of the eVoucher cards for farmers which had not done well since its inception (Farming, 2018).

Additional prominent reasons that made the adoption of ICTs among SMEs not to be accelerated include the old government policies and frameworks that required to be updated with the current advancements in technologies and the access to the Internet among the businesses and consumers (Works, 2014). These policies were under review with Government through the Ministry of Transport and Communication presenting ICT bills to Parliament which supported SMEs through Bills like e-Government Bill, the Cyber Security Bill, the Data Protection Bill, the e-Transactions and e-Commerce Bill (Communications, Lusaka). According to (Ardjouman, 2014), government support and management support are important predictors that influenced SMEs to adopt and use technology. Government regulations and their bureaucratic procedures could hinder as well as facilitate entrepreneurship activity such as new business origination. The Government would come up with policies that boost and support the growth of innovative technologies, products, and solutions. On the other hand, Government would likewise seem to hinder SME firm performance when it introduces policy which could restrict the autonomy, as well as the entrepreneurial freedom of some variety (Eniola & Entebang , 2015). Government policies that impact support were a decisive factor for SMEs growth. The character and span of Government policies had a right way impingement on an organization's performance. If the culture of Government, education, regulatory authorities, banks, the professions and the large corporate sector lacked empathy with SMEs, then it would be unmanageable for the SMEs to survive and develop.

Small business owners were less likely to embrace innovation and were not likely to have a well-defined business strategy when setting up their businesses. The problem had been energized by the buyers and traders of the goods and services that these SMEs operated with as they also had habits of preferring excluding the use of ICTs in their businesses due to factors that were studied on in this research.

1.3 Objectives

1. To study the technological acceptance of ICTs by SMEs in Zambia.
2. To identify the barriers and drivers of ICTs on SMEs.
3. To determine the relationship between the increase in investment of ICTs and the benefit to SMEs in Zambia.

1.4 Research Questions

1. What measures have been in place to support the use of ICTs by SMEs in Zambia and the preferred modes of trade amongst them and how can ICTs enhance them?
2. What are the main constraints or drivers that encourage or discourage the use of ICTs) among SMEs in Zambia?
3. What is the relationship between investing in Information and Communications Technology (ICT) and the growth of the Small and Medium Enterprises (SMEs) in Zambia?

1.5 Justification of The Study

The study helped in understanding the importance of ICTs in the running of businesses by SMEs and the various perceptions held by many about them. It also brought forth the possible constraints SMEs had in accessing ICTs and applying them to their businesses as well as find out the possible drivers/barriers to enhance the application of ICTs.

1.6 Scope of Study

The study focussed on SME's use of ICTs in their business with a view on what encouraged them and the possible reasons for not using them. The sample types of SMEs were limited due to the various categories that were found to meet the schedule. The study did not cover SMEs that were governmental and those that were funded by the government and would only cover SMEs in Lusaka, as the commercial centre for trading in Zambia.

1.7 Chapter Summary

This chapter presents the background of this research, research problem, objectives, significance of the study, and the scope of the study.

1.8 Organisation of Dissertation

In Chapter One, the study explains the basis of the study, the problem statement, objectives of the study, the key research questions, justification of the study and the scope. This formed the introduction of the dissertation to help understand the research topic.

Chapter Two discusses the key terms that were used in the research, their definitions according to the various international and local organisations. The chapter defines Small and Medium Enterprises and Information Communication Technology and their effects on the economic performance of countries as well as the challenges faced. The chapter also considered the effects of the Small and Medium Enterprises have on the development of the telecommunication sector in Zambia and effects on the way business was done. Technological acceptance models were explained in this chapter together with the related works done.

Chapter Three discusses the research methodology, conceptual framework, research framework, data analysis and the limitation of the study. In research methodology the research design was explained, the population and sampling and the research instruments discussed. Conceptual framework in the chapter discussed the various characteristics of market, customer, ICT and economical.

Chapter Four mainly presents the results obtained from the study from both classes of SMEs considered.

Chapter Five discusses the findings from the results from chapter four. It uses the data and determines the research questions and objectives stated in chapter one.

Chapter Six contains the conclusions drawn from the study and the recommendations. In this chapter the research gives the conclusions from the findings as well and the future research gaps to be used.

CHAPTER TWO

LITERATURE REVIEW

2.1 Small and Medium Enterprises

Small and Medium Enterprises (SMEs) are an assorted mix of business enterprise groups that were found in many sectors offering services and products. These were entities that did simple day-to-day business entities providing quick services, to single craftspeople producing agricultural implements for the village market, the coffee shops and restaurants, Internet cafés, local garbage collection firms, farmers doing small scale to commercial farming or small sophisticated engineering. They also could be software firm selling in local and overseas markets, a medium-sized automotive parts manufacturer selling to multinational automakers in the domestic and foreign markets among others. The definition of an SME is usually dependent on the criteria that is used to classify them such as the number of employees, the amounts of sales and the value of assets (Pula, 2015). A broad view was used both from the international to the local perspective on what defines an SME. Table 2.1 shows more of the criteria used according to (Gentrit Berisha, 2015). Table 2.2 shows the definition of SME with the World Bank Standards and Table 2.3 shows the definitions used by the multilateral institutions.

Table 2. 1: Enterprises by World Bank standards Definition of Small and Medium Enterprises with European Union standards

Enterprise Category	Number of Employees	Annual Turnover	Annual Balance Sheet
Medium-Sized	< 250	≤ €50 million	≤ €50 million
Small	< 50	≤ €10 million	≤ €10 million
Micro	< 10	≤ €2 million	≤ €2 million

Table 2. 2: Definition of Small and Medium Enterprises with World Bank Standards

Enterprise Category	Number of Employees	Total Assets	Total Annual Sales
Medium	> 50, ≤ 300	> $3 million, ≤ $15 million	> $3 million, ≤ $15 million
Small	> 10, ≤ 50	> $100,000, ≤ $3 million	> $100,000, ≤ $3 million
Micro	< 10	≤ $100, 000	≤ $100, 000

Table 2. 3: SME Definitions Used by Multilateral Institutions

Institution	Maximum Number of Employees	Max. Revenues or Turnover ($)	Maximum Assets ($)
World Bank	300	15 million	15 million
Multilateral Investment Fund	100	3 million	None
Africa Development Bank	50	None	None
Asia Development Bank	No official definition. Uses only definitions of individual national governments		
UNDP	200	None	None

While these international institutions have these general criteria, the Zambian Government had also laid out definitions and settings that defined what SMEs were and what qualifies them. The following information in Table 2.4 provides what defined them (Ministry of Commerce, 2008):

Table 2. 4: SME Definitions Used by the Zambian Government

Enterprise Category	Maximum Number of Employees	Maximum Revenue Turnover (K)
Medium	> 51, ≤ 100	> 300, 000, ≤ 800, 000
Small	> 11, ≤ 50	> 151, 000, ≤ 300, 000
Micro	< 10	≤ 150, 000

SMEs can also be grouped according to their categories according to Table 2.5.

Table 2. 5: SME Category

Nature of Industry	Nature of Business
1. Manufacturing	1. Textile products 2. Carpentry and other wood-based business 3. Light engineering and metal fabrication 4. Food processing 5. Leather products 6. Handicrafts 7. Processing of semi-precious stones 8. Ceramics 9. Essential Oils
2. Trading	1. Consumable products 2. Industrial products 3. Agricultural inputs 4. Printing

3. Services	1. Restaurants and food production 2. Hair salons and barbershops 3. Passengers and goods transport 4. Telecommunication services 5. Financial services 6. Business centres 7. Cleaning services 8. Guest houses 9. Building and construction
4. Mining	1. Small scale mining 2. Small scale quarrying

2.2 Information Communication Technology

Information Communications Technology, ICT could be defined as "as a generic term referring to technologies that are used for collecting, storing, editing, processing and passing on (communicating) information in various forms" (Kundishora, 2006) or as "technologies used to convey, manipulate and store data by electronic means. This can include e-mail, SMS text messaging, video chat (e.g., Skype), and online social media (e.g., Facebook). It also includes all the different computing devices (e.g., laptop computers and smart phones) that carry out a wide range of communication and information functions (Brian E. Perron, 2010). Zambia is a developing country and what qualifies it is because it has features of a developing nation which are the following according to (Kumar, 2009)

- Lower per-capita income
- Low levels of human capital
- High levels of poverty and under-nutrition
- Higher population growth rates
- Predominance of agriculture and low levels of industrialization
- Low level of urbanization but rapid rural-to-urban migration
- Dominance of informal sector

- Underdeveloped labour, financial, and other markets.

Zambia, as the case with many Southern African countries, had a development plan in which ICTs had been marked as key national agenda in the development of the nation (Government, 2017). The government made measured policies to ensure that the use of these ICTs is maximized to aid growth in many industries and across sectors of the economy. “Information communication technology (ICT) has been identified as a catalyst for socio-economic development by promoting competitiveness as well as being an enabler of good governance” according to the Government of the Republic of Zambia (Government, 2017). From 2017-2021, the Government of the Republic of Zambia set out the Seventh National Development Plan (7NDP) which recognized the importance of ICTs and the role they play in economic development (Government, 2017). This had been the agenda with the previous Development Plan which was the Sixth National Development Plan (SNDP) with a plan of making Zambia a middle-income nation by 2030. The *Vision 2030* framework that had been put in effect had admitted that there was need to invest more in ICTs through infrastructure development affecting the communication and business needs of the country (Zambia, 2006).

The Zambian Government saw the potential that SMEs had in the development agenda as witnessed from countries that had been declared as Middle-Income Nations (MINs). Thus, creating a conducive environment for the SME’s to operate in through policies which when implemented would favour the growth of small business as laid out in the plan, was the primary objective for the Government (Government, 2017).

As part of the approaches to be used in creating this conducive environment, ICT was one of the key techniques that had been a major contributor to the achievement of the goal. ICTs had a major impact on the running of businesses and the clientele they are attracting.

2.1 Impact of ICTs on SMEs

A categorical view of the benefits of ICTs can be provided as operations benefits using Figure 2.1, tactical benefits using Figure 2.2 and strategic benefits using Figure 2.3 (Andreea, 2008):

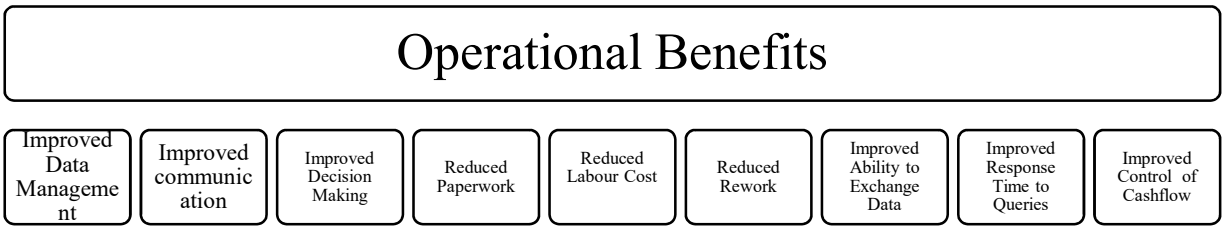

Figure 2. 1: Operational Benefits

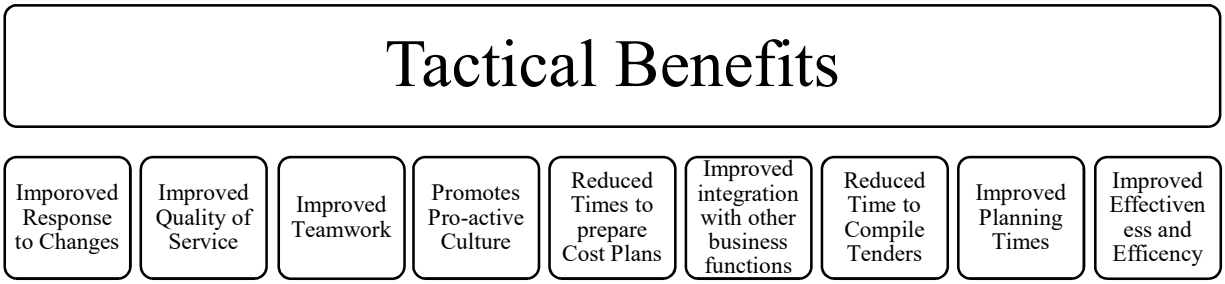

Figure 2. 2: Tactical Benefits

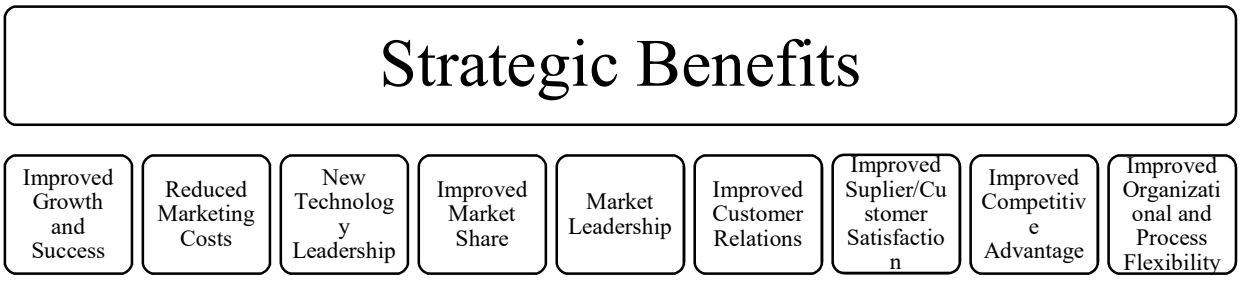

Figure 2. 3: Strategic Benefits

In unskilled sectors, ICTs were key with the following examples:

1. Farming: Farmers can get real time updates of diseases and breakouts such as army worms access to credit and better market prices in good time (Organisation, 2017).
2. Carpark attendants now have wireless communication by using technologies such as Satellite or Radio waves (Singh, 2014).
3. Individuals can now easily take orders online from various restaurants and have them delivery to their address specified (Afridelivery, 2018)

Using this information then, a relationship could be established on how well the ICTs impact on the business conduct of SMEs together with the barriers and drivers. ICTs were seen as the engine

to speed up the growth of businesses both in the local and international environment of businesses as could be seen from the developed world. It was assumed that SMEs did not integrate ICT tools in their businesses because of reasons such as inadequate finances, lack of technical knowledge, seeming lack of applicability of ICT to the business that the SMEs were engaged and deprived infrastructural growth among other reasons.

This research aimed at finding out the facts about the hypotheses stated, evaluate how ICTs were used by the SMEs, the barriers that prevented their adoption and the drivers that encouraged the use of ICTs in Zambia through the stated methodology to get the information to access from different SME sectors.

2.2 Impact of investing in ICTs on SMEs

According to (Development, 2004), Information and communication technology (ICT) and e-business applications provided many benefits across a wide range of intra- and inter-firm business processes and transactions. ICT applications improved information and knowledge management inside the firm and reduced transaction costs and increased the speed and reliability of transactions for both business-to-business (B2B) which dealt with relationships between and among businesses and business-to-consumer (B2C) transactions which involved customers gathering information or purchasing goods over an electronic network. In addition, they were effective tools for improving external communications and quality of services for established and new customers.

Governments in developing countries made deliberate policies which supported the investment in ICTs as they had an important role they played in the growth of economies. Government in Zambia through its Seventh National Development Plan (7NDP) stated that Government will undertake policy, legal and institutional reforms to facilitate universal access to ICT and promote the use of ICT in business (e-Commerce); networking of services and applications across the public sector and online access to government services will be prioritized (Planning, 2017). These investments created a conducive environment in which ecommerce would thrive.

2.3 SMEs and E-Commerce

Ideally more investments in ICTs should result in improved business services and production among SMEs because of the enabling results which ICTs have on businesses. According to (Gupta, 2014) electronic commerce or e-commerce refers to a wide range of online business activities for products and services. It also pertained to any form of business transaction in which the parties

interact electronically rather than by physical exchanges or direct physical contact. E-commerce was usually associated with buying and selling over the Internet, or conducting any transaction involving the transfer of ownership or rights to use goods or services through a computer-mediated network.

Small businesses were able to compare with major market players and compete for the same customers through use of ICTs. Some of the methods that it was used include:

1. Social Media: Social media refers to a wide range of Internet-based and mobile services that allow users to participate in online exchanges, contribute to user-created content or join online based communities. The following are some of the examples (Dewing, 2012):
    1. Blogs: Short for web-log which are online journals hosted on platforms such as WordPress, Tumblr and Blogger.
    2. Wikis: A wiki is a collective website where any participant can modify any page or create any new page using a browser such as Wikipedia.
    3. Social Network Sites: These are web-based networking sites that allow individuals to construct a public profile within a bounded system, review the users with whom they share connections and traverse the list of connections within the system. Some popular examples are Facebook and LinkedIn.
    4. Media Sharing Sites: These sites allow users to post videos or photographs. Examples include YouTube, Instagram and Pinterest.

    Social media platforms like Facebook and WhatsApp groups encouraged knowledge sharing and businesses. With the Information Age, most individuals connected using various technological platforms, in this case Social Media. In Facebook groups or posts, businesses can post their products or services freely among the member and consultation is real-time as answers and questions are readily available. SMEs can maximize the use of these social media platforms to advertise to a wide range of their contacts and even more with a small fee to a larger scale appearing as ads on users' timelines.
2. Websites: In the wake of eCommerce, online business has been adopted by most enterprises to provide their products and services. In 2017 according to (Trends, 2017), Adobe Analytics, which measures sales data from the top 100 U.S. web retailers, found

that online sales accounted for $7.9 billion during Thanksgiving Day and Black Friday. That marked a 17.9 percent increase from 2016. In a sign that mobile shopping is becoming more prevalent than ever, analysts noted that purchases made on smartphones were up by 29 percent in 2017. With this appetite for online shopping, small businesses are investing more in websites that are user friendly and paying for advertisements on search engines to get more customer base which in the end levels up the competing field with businesses. In Zambia, fast food restaurants and takeaways are now providing mobile ordering and delivery of food through digitalized websites and mobile applications such as Zoom, enabling them to compete with recognised and established firms in the market (Zoom, 2018). Other noTable players in the market include Afridelivery who provide similar services allowing users to track their orders (Afridelivery, 2018) and Deliveries Dlish (Dlish, 2018).

3. Electronic Billboards: SMEs can now use the electronic billboards that have different content showing. Using this method, small holder firms can pay for time their goods and services are displayed enabling them to capture potential clients at an affordable rate. In the Zambian setting the leaders in Electronic Billboards vending are Magic Advertising and Promotions Limited (Advertising, 2018) and Alliance Media (Media, 2018) who are about to structure packages that suit different SME types to improve their businesses.
4. eProcurement Procedures: The e-Procurement System also called the Electronic-Government Procurement (E-GP) System is the use of Information and Communications Technology (especially the internet) by governments in conducting their procurement relationships with suppliers for the acquisition of goods, works and consultancy services required by the public sector (Authority, 2015). Using this such systems, SMEs can compete favourably with competitors as the constraints of having to register have been eliminated which also leads to a more transparent public procurement process.
5. Mobile Money Transfers: Money transfers around the globe has become cashless in the Information Age. The concept of a cashless society is based on electronic transaction (e-transaction). Generally, these cashless transactions are linked to a bank and the banks have adequate control over the transactions (Jain, 2017). In a society where many individuals do not like to carry currency in their wallet, people are thinking seriously about electronic payment (e-payment) through electronic money (e-money) with the help of electronic cards

(e-cards) and electronic banking (e-banking). Individuals are opting to use Banking applications, Bank to mobile number cash like ewallet, Mobile money transactions like MTN or Airtel Money to purchase goods and services.

2.4 Investment in ICT and benefits

2.4.1 Communications infrastructure in Zambia

The Vision 2030 broadly outlined Zambia's aspiration to become a prosperous middle-income country by 2030. It particularly sets targets for the country to become an information and knowledge-based society by 2030. This was expected to be achieved through increased connectivity to fibre optic (telecommunication infrastructure rollout) and other high capacity transmission technologies (networks); Increased access to phones per 100 people (tele-density) from 0.9 to 8 by 2015 and to 50 by 2030; and Increased access to ICT services such as Internet users from 35,000 in 2005 to 100,000 by 2015 and to 1,000,000 by 2030 (ZICTA, 2015).

Zambia had three operational mobile telecommunications companies with voice licenses which were Airtel, MTN, Zamtel owned Cell Z and then newly introduced UZI Zambia Limited owned by Unitel International Holdings (Reuters, 2018). These provided mobile telecommunications to the people of Zambia through cell-based coverage areas by distributing signals via cell towers. The distribution of the towers across the country determined the accessibility of the network, hence mobile telecommunications company made it as one their prime objectives to cover as much area of the country land as possible. Other providers of mobile communications were Hai Technology Zambia, Zamnet, Microlink, CEC Liquid, and Vodafone Zambia (TechTrends, 2018).

Telecommunication companies with both voice and data licenses had their first challenges of coverage when they entered the market. This enabled them to roll out access points in form of towers in all parts of the country and used it as a competitive advantage when advertising about how they can reach out to most parts. As the rolling out of towers was done, data infrastructure was also being laid out to offer data services to the areas which were covered by the network. Most of the areas covered with the voice coverage area had the Time division multiple access and the Code-Division Multiple Access (TDMA/CDMA) technology which allows numerous signals to occupy a single transmission channel, optimizing the use of available bandwidth as protocols used in the Second Generation (2G) networks. The investments were high initially but were inevitable

because the country has an Internet-hungry generation that required the service and to avoid the loss of customers to the competitors.

As technologies advanced and the need for internet grew, faster Internet connectivity was required and in the wake of new type of phones such as the smartphones, there was need to upgrade the rate at which data is transferred. A new generation called the Third Generation (3G) was introduced. The advantage which 3G came with was that it could use the existing CMDA technology to be implemented meaning that the mobile telecommunication companies were able to use the existing structures to roll out the 3G with the use of new infrastructure to implement the new technology. But as the data needs increased more and with the new set of devices found on the market, Fourth Generation (4G) has been launched to provide high data rates to support the new telecommunication ways and offer a new type of competitive advantage in the market

To increase subscriber base and revenue, two private mobile telecommunications companies, Airtel and MTN, decided to sell off their towers and their management to IHS Zambia (IHS, 2018). This enabled the companies to concentrate on the core business aspects while having the assurance of quality network access and continued subscriber growth as they transferred the risk of providing quality and consistent connection to IHS Zambia who were renowned cell tower managers in parts of Africa (Africa, 2014). This improved the customer base of both MTN and Airtel with increasing the already huge difference with the government owned Cell Z who still managed their own cell towers.

Operators were usually hesitant to migrate to a new generation plan especially if it demanded the installation of new infrastructure because they had to make recoveries for their initial investment before they could attempt to roll out the next. Another reason was that the type of handheld devices such as phones used in countries like Zambia were not 4G ready and the price at which the 4G ready devices came with. The majority could not afford them, and others thought of buying one as a waste of resources if they were able to use the devices with 3G to meet their needs. Hence, service providers looked at the investment as one that did not need urgent infrastructure upgrade. This could be seen by the delay and the rate at which Zamtel took to roll out its 4.5G network (ZAMTEL, 2016).

Innovation and infrastructure improvements made customers move from one mobile telecommunications company to another. Probability was high that the implementation of the next

generation called 5G would be slow as investments were currently being done to upgrade the current 3G mobile coverage to 4G with most parts of the country not under 4G. The mobile telecommunications companies required having a period of recovering their investments before launching 5G. Trade-offs and Return on Investment (ROI) analysis had to be done before a mobile telecommunications company decided to invest in such a technology.

By the end of 2016, MTN Zambia had the largest mobile subscribers then followed by Airtel Zambia with 48% and 37% shares of the market respectively and with Zamtel's Cell Z having 15%. Table 2.6 below shows the volume statistics from the Zambia Information Communications Technology Authority.

Table 2. 6: Volume Statistics (ZICTA, 2017)

Volume Statistics	2010	2011	2012	2013	2014	2015	2016	2017 Q1	2017 Q2	2017 Q3
Number of active Subscribers	5,447,536	8,164,553	10,524,676	10,395,801	10,114,867	11,557,725	12,017,034	11,916,871	12,429,675	12,971,354
Mobile Penetration /100 Inhabitants	41.6	59.5	74.3	71.2	67.1	74.3	79.4	72.6	75.8	79.1
Mobile Broadband users	-	379,888	2,314,983	2,211,640	3,741,615	6,090,412	5,156,365	5,064,395	5,886,545	7,148,325
Mobile Broadband penetration/ 100 users		2.8	16.4	15.1	24.8	39.2	32.2	30.9	35.9	43.6
Traffic domestic Incoming Minutes		533,037,653	659,238,682	546,053,603	1,250,855,753	1,619,999,818	1,089,330,526	326,941,629	382,835,060	435,052,766

(MNO+PSTN)										
Traffic domestic Outgoing Minutes (MNO+PSTN)		4,107,012,084	6,729,472,592	7,132,236,786	9,008,148,025	8,503,205,912	11,500,328,930	2,318,839,682	2,451,406,248	2,923,237,689
Traffic International Incoming Minutes (MNO+PSTN)		118,226,631	143,902,933	130,199,249	156,357,097	84,742,385	72,816,296	18,639,266	18,283,341	11,659,344
Traffic International Outgoing Minutes (MNO+PSTN)		66,527,853	81,332,753	95,831,382	99,928,727	76,844,822	86,757,866	10,285,990	11,613,523	11,664,026
SMS/MMS traffic		1,661,665,734	2,041,288,825	1,084,647,709	893,040,156	1,408,979,862	7,070,191,769	1,942,218,058	1,625,838,924	1,646,657,631
Minutes of use (Monthly)		49	60	63	87	74	88	75	77	87

To calculate the Average Revenue per User, the total revenue generated by all units during that period was determined. Then that figure was divided by the number of subscribers. The active subscriber base was at 12,429,675 from the three mobile service providers (ZICTA, 2017). The total revenue of the service providers was K 4,371,404, 000 (ZICTA, 2017) and by obtaining

revenues from the operator's annual reports, the computations were done as following using Table 2.7:

Table 2. 7: Average Revenue per User

Network	Market Share	Subscribers	Revenue	ARPU
Airtel Zambia	37%	4, 598, 980	2, 117, 000, 000	460.32
MTN Zambia	48%	5, 996, 244	2, 543, 000, 000	421.93
Cell Z	15%	1, 864, 451	288, 796,000	154.9

Note:

1. MTN Zambia reports as a group and it was not listed on the Lusaka Stock Exchange (LuSE) (Times, 2017)
2. Computation for Zamtel was based on the difference in revenues from Airtel Zambia and MTN Zambia
3. Airtel Zambia listed on the LuSE and the figures were obtained from the stock exchange and the annual report
4. The Exchange rate used was 8.8 in the conversion of the dollar amounts
5. The Revenue was in Kwacha
6. The subscriber numbers were calculated from the percentages held by each provider

The importance of investing in communications infrastructure could not be overlooked as it improved the access to ICT services to a wider population and areas with little or bad communication infrastructure ended up with expensive charges and limited coverage, especially in rural areas. This discouraged SMEs from adopting even the basic ICT of fixed lines or mobile phones (Prof. Asoc., 2013). Zambia's GSM coverage was comparatively low by regional standards and well below what the market could deliver. Only 53 percent of Zambia's population lived within range of a GSM signal, compared with 67 percent among Africa's resource-rich states and 85 percent of the middle-income countries (Dominguez, 2010).

Zambia had fibre terminating at the borders: Zimbabwe at Kariba, Botswana at Kazungula, Zimbabwe at Chrundu, Tanzania at Nakonde and Namibia at Katima Mulilo. The two major companies that invested in optic cable in Zambia were The Copperbelt Energy Company (CEC)

in corporation with Liquid Telecom and the Zambia Electricity Supply Corporation (ZESCO) (Trends, 2014). CEC had installed a 24-core 520km fibre optic whose excess capacity was available for resale to potential users. On the other hand, ZESCO had installed a fibre optic cable covering most provincial capitals in its quest to provide seamless optic connectivity (ZESCO, 2018). It was desirable that a national network covering the entire country would be developed taking advantage of existing infrastructure such as electricity powerlines as a means of quick rollout of the network using powerline technology, about 3,500km of fibre optic cabling was needed to cover the country up to provincial level (Communications, 2006).

Map in Figure 2.4 show the map of the fibre cables in Zambia using the Zambia Electricity Supply Corporation, Figure 2.5 shows the connectivity within the region and Figure 2.6 shows the various fibre cables around Zambia.

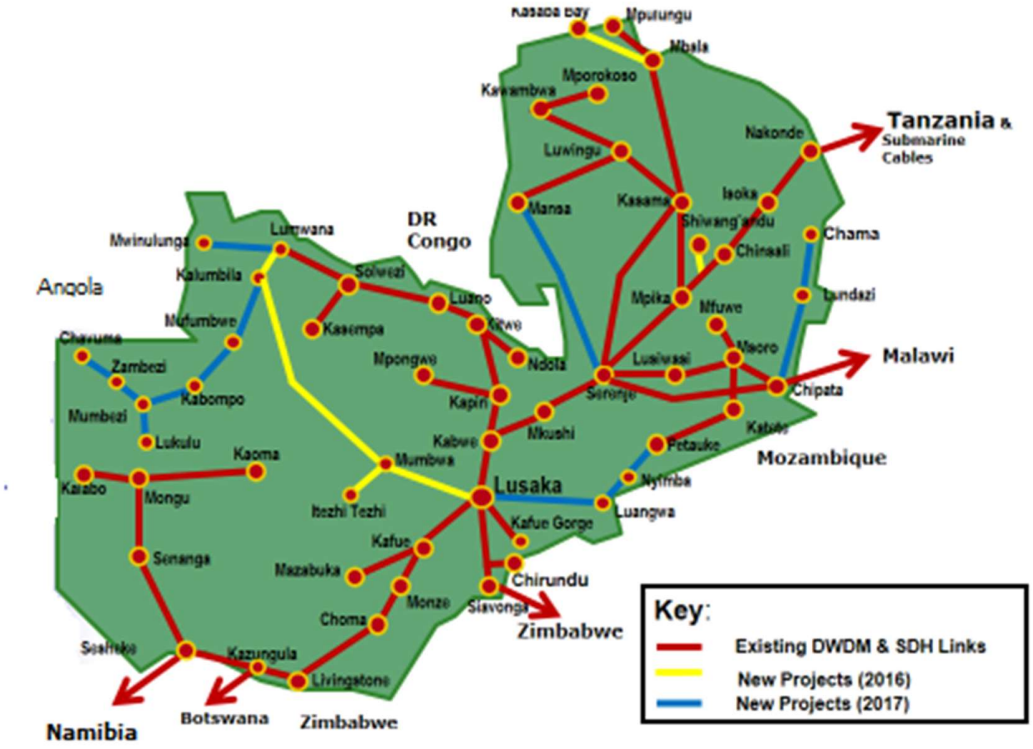

Figure 2. 4: Map Showing the Optic Fibre Cables (ZESCO, 2018)

Figure 2. 5: Regional Optic Fibre (Telecom, 2018)

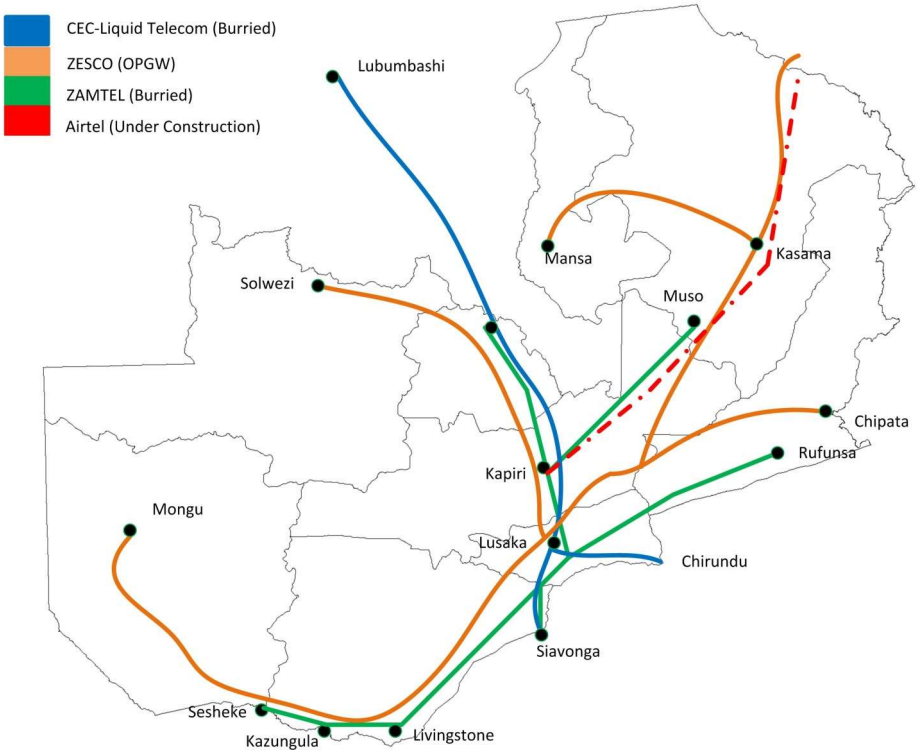

Figure 2. 6: Map Showing the Different Optic Cables (Trends, 2014)

As part of improving accessibility, Zambia implemented the digital migration exercise from analogue television to digital television. Digital Television's main advantage was the increase in capacity on the digital broadcasting platform by close to 600%. Other advantages which arose from the transition include: superior signal quality on the digital platform; capacity to broadcast data (downstream); real time programming user guide; reduced operating power for the same coverage area of up to 50%; and capacity for tele-text of TV to TV communication (ZICTA, 2015).

2.5 Challenges faced by SMEs

2.5.1 Inadequate funding

A functioning financial system was of vital importance both with respect to growth of the business sector and overall economic growth and poverty reduction (Sveinung Fjose, 2010). A key problem among the SMEs was the funding. Amidst the acclaimed beneficial impacts of SMEs on economic development, entrepreneurship, and improved local technology, small business in Africa showed gross underperformance due to lack of funding (Emezie, 2017). Funding was key in the development of SMEs as it was needed in the sustainability and expansion of the businesses. Funding was also key in the setup of businesses during start-up when most resources were needed to build up a working business and, in most cases, SMEs were required to have collateral in form of physical assets in order to access the loans on the market (Zambia, 2013). According to The Development Bank of Zambia website, an entrepreneur was required to have a minimum of K1 million in form of collateral to qualify for the minimum loan amount (Zambia, 2013). Comparing these conditions with the types and ranges in the revenues due per SME category reviewed, it became a challenge to meet such a basic requirement from an institution that was required to support businesses that were developing.

The other challenge SMEs faced in funding was that many banks preferred to allocate their resources to large enterprises rather than to SMEs because large enterprises had a lower risk of default and their financial statements were clear (Taghizadeh-Hesary, 2016). Financial institutions behaved more cautiously when providing loans to SMEs, and SMEs were usually charged comparatively high interest, high collateral and loan guarantees and that loan policies and collateral requirements discourage SMEs from obtaining loans from banks (Asma Benzazoua Bouazza, 2015).

Most SMEs also lacked the capacity to take insurance covers to cushion them against risks. SMEs due to their small size lacked sound experiences and financial position were less capable of adjusting and carrying on successful businesses. SMEs were also subjected to unequal treatment which distorts the competitive environment of the business (Katua, 2014).

2.5.2 Unfavourable economic conditions

A favourable business environment is vital for SMEs to thrive, but it was found that some of the advanced African economies did not make it easy for SMEs to operate as the business environment was hostile. For example, high taxes, inflation, unstable exchange rates which all impact profits and high taxes had an effect on the increasing cost of conducting business and ultimately the traders that passed on the charge to the consumer and in turn made some goods and services more expensive than the intended cost (Nuwagaba, 2015). The financial crisis adversely impacts most of the SMEs, reducing the development rate and increasing the number of bankruptcies. Start-ups were most vulnerable, lacking the resources to survive the downturn (Hodorogel, n.d.). High taxes discouraged SMEs from expanding their operations and becoming visible to governmental officials, since being visible or operating formally was likely to increase the cost of operating (Asma Benzazoua Bouazza, 2015).

2.5.3 Insufficient use of information technology and record keeping

More consumers have come to prefer Internet sales to over-the-counter sales and the e-commerce market for individuals was expanding but SMEs have been unable to sufficiently utilize such opportunities (Taghizadeh-Hesary, 2016). For instance, many SMEs did not own websites to support online shopping or provision of services (Entrepreneur, 2016).

SME owners thought that keeping records was not an important process and that the process of keeping records was a time-consuming duty that would affect concentration of business owners. SMEs were unable to distinguish between the money for personal and working use and that many businesses ended up using working capital for personal use, and this was majorly associated with lack of record keeping (Emezie, 2017) (Mwika, 2018). Managing the capital was considered one of the obstacles on the way of growth and expansion of SMEs. Poor accounting and reporting and decisions based upon inaccurate or incorrect financial information could cause problems which threatened the solvency of the business. Lack of record keeping in business specially the small business enterprises led to their collapsing (Chakraborty, 2015).

2.5.4 Low level of business research and development in SME sector

SMEs were great component that supports innovation and competition (OECD, 2017). This happened as they tried to gain a market share of incumbents by introducing new products and services that captured the consumers appetite to spend on them. This market share was captured at the initial product or service launch, but challenges arose when SMEs were faced with the issues of retaining and gaining more customers. SMEs contributed greatly to the innovation system by introducing new products and adapting existing products to the needs of customers. Small firms accounted for a disproportionate share of new product innovation given their low R&D expenditures (Guinet, 2000). An economy's Research and Development is generally concentrated in a limited number of large firms (Taghizadeh-Hesary, 2016). This is because SMEs have limited budget to work with and are forecasting now business and customer retention mostly and spend less in Research and Development.

2.5.5 Access to electricity

Lack of electricity supply and electricity reliance combined with growing energy demand drove up prices (Sveinung Fjose, 2010). This pushed the prices of products and services produced or offered by SMEs not to easily penetrate the markets in which they desire to setup businesses. In the 2017 National Budget, the government of Zambia announced a plan to introduce 'cost reflective tariffs' for electricity by the end of 2017. This meant removing the subsidies which allowed ZESCO to charge consumers less than the cost of producing and distributing the electricity. Despite these benefits, policy questions remained to ensure any withdrawal of subsidies was done effectively. For example, the Government needed to consider how cost reflective tariffs can be introduced while adequately protecting the poorest Zambians and SMEs, as well as how to ensure price increases are sustainable and don't end up being reversed in the future (Center, 2017). There were many causes for the lack of adequate provision of electricity in Africa, such as the following (Doe Frederick, 2014):

1. Poor performance, resulting in poor quality of supply and service and an inability to meet growing electricity demand.
2. Insufficient managerial and technical skills to do the job.
3. Inability of the African country's government to fund expansion or refurbishment, or to attract private sector investment into the power sector.

4. Lack of maintenance of the existing facilities due to inadequate finance/technical leading to reliability problems.
5. Inappropriate tariffs, often resulting from political interference, with tariffs below marginal costs.
6. Poor governance or unstable governments due to regional and ethnic conflicts.
7. Poor economic status of African states especially south of the Sahara.
8. Inadequate revenue collection mechanisms, and therefore credit unworthy businesses.
9. Inadequate rainfall which causes power rationing.

All these have culminated in poor supply of electricity with its attendant effects on the operations and performance of SMEs.

Availability and access to reliable electricity supply had a rippling effect on productivity and welfare of society. To SMEs, power supply served as an indispensable input in their activities and apart from its necessity for running many industrial machines, its role to the productivity of human capital were enormous (Adarkwah, 2016).

2.5.6 High employment turnover

Employee retention is a combined effort of policies and practices that cause employees to remain with an organisation for a longer period. The turnover of key employees can have a disproportionate impact on the business (Sanda, 2013). The jobs that small firms create are less attractive than those in larger enterprises. Small firms across Africa have higher job turnover and persistently lower wages than larger firms (UNU-WIDER, 2012). This was because SMEs were start-up firms with capital focusing on sustaining the business and minimizing operational costs. Therefore, even the type of human resources used were those that were establishing themselves in the operational areas or those getting job on training. These left SME start-ups for bigger firms which also offered bigger wages and better conditions of service whilst providing for a stable employment (Sanda, 2013). Individuals that worked for small business or start-ups usually got the security and better wages once the firms started to expand and more cashflow happened in the businesses. But then this happened after the individuals' persistence even with the uncertainty of whether a small holder firm can survive or not. The high turnover of SMEs affected them negatively in a financial sense because of the time and effort required to acquire and train new staff (Smit, 2012). Reducing employee turnover save money. Money saved from not having to find

and train replacement workers could be used elsewhere, including the bottom line of the organization's profit statement (Portal, 2016)

2.6 Factors favouring SMEs

2.6.1 SME Contribution to national growth

SMEs play a key role in transition and developing countries and constituted a major source of employment and generate significant domestic and export earnings. As such, SME development emerged as a key instrument in poverty reduction efforts (OECD, 2004). SMEs globally have a very significant contribution to the provision of goods and services to the society (Katua, 2014). Without SMEs, big companies may not be able to meet the demand for goods and services in an expanding customer base. The following are some of the economic benefits of a country with thriving SMES.

2.6.1.1 Creation of jobs

SMEs dominated the world economies in terms of employment and number of companies, yet their full potential remained remarkably untapped. This was due to several reasons (e.g. legal, institutional, cultural, societal etc.) which made the role of SMEs on economic development different across countries. The SMEs constituted over 90% of total enterprises in most of the economies and were credited with generating the highest rates of employment growth and account for a major share of industrial production and exports (Katua, 2014).

2.6.3 Diversification of the economy

Economies in the developing countries were striving to diversify their revenue base from traditional sources of revenue to more sustainable sources for economic growth and stability. In the case of Zambia, copper mining had been its dominant natural resource on which the country depended on since independence in 1964 resulting in the economy being negatively affected each time there has been a shock to the copper mining industry (Haabazoka, 2016). The goal of the 7NDP was to create a diversified and resilient economy for sustained growth and socioeconomic transformation driven, among others, by agriculture, tourism, manufacturing and mining (Planning, 2017). With this support, SMEs were key in the diversification of the economy by seeking areas that had potential and lobbying backing from the government through policies and procedures to enable them to operate effectively.

2.6.4 Bridging the digital divide

Digital Divide refers to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities (OECD, 2001). This meant that a set of people had access to information based on their social placement in society with provision of digital aid to their advantage in decision making and knowledge sharing as compared to others who did not have access. In short, digital divide referred to the gap between those who did not and those who did have access to computers and the internet. The digital gap could generally be defined as an inequality in relation to the possibilities of reaching and of contributing to information, knowledge and the networks, such as profiting from the major capacities of development offered by ICTs (Kouadio, 2007).

The biggest challenge that faced potential ICT consumers was the high cost of equipment and broadband services. ICT equipment was already expensive for the citizens of a country with a per capita Gross National Product which only just exceeds the cost of a single personal computer. The cost of PCs and peripherals such as modems was pushed up further by high rates of taxation. And costs for broadband services were high – around US$100 per month, compared with around US$20 in Europe. As a result, only the wealthy had access to the Internet in their homes and offices, while most consumers relied on telecentres and cybercafés (London, n.d.).

Information and communication technology (ICT) had been identified as a catalyst for socio-economic development by promoting competitiveness as well as being an enabler of good governance. However, there were several challenges regarding access to and utilization of ICT in Zambia. ICT infrastructure, both public and private, was inadequate and fragmented, resulting in poor connectivity and communication. Further, the public sector lacked adequate human resource in computing and information technology. This was compounded by a weak supportive legal and institutional framework for the development and utilization of ICT (Government, 2017). Using the 7NDP, SMEs had the support of government in investing in ICTs to enhance their business whilst pushing the agenda of reducing the digital divide in the country by maximizing opportunities of reduced taxes on ICT equipment and the setting up of a computer assembly plant in the Lusaka South Multi-Facility Economic Zone (MFEZ) (Communications, 2017).

2.7 Impact of SMEs on ICTs

2.7.1 Innovations in ICT

Due to the flexibility of ICT, SMEs had seized the opportunity to make the most out of the platform to enhance their businesses to produce their products or offer their services effectively. This study focussed on the way ICTs were used to provide services to customers and how the sectors were using ICTs to enhance their operations.

2.7.1.1 Mobile money

With the growing use of technology worldwide, consumers across the globe were shifting towards using electronic methods to pay for products and services. Factors that influenced consumer's choice of payment form include knowledge, perceived usefulness, ease of use, accessibility, simplicity of transfer, a high level of divisibility, attractive deals or benefits, familiarity, convenience, trust, need, personal control, transaction time, leverage potential, safety, record keeping, cost, personal traits, and availability of more appealing payment methods (Dzokoto, 2016).

Mobile payments (m-payments) and mobile commerce (m-commerce) refer to the use of mobile phones for financial transactions such as retail payments and person-to-person transfers only, based on technologies such as short-messaging service (SMS) or Java. M-banking refers to the delivery of banking services through mobile phones. It includes m-payments but also involves access by mobile devices to the broader range of banking services, such as account-based savings or transaction products, balance enquiries, money transfers, remittances and bill payments that are linked either to the customer's own account or the service provider's account (Matters, 2007).

There were two main African mobile financial service models which are Bank-led model with additional services to existing customers through a mobile banking application and Nonbank-led model with transformational outreach to the unbanked population. The success of the Mobile Network Operator (MNO) led model was dependent on a large reliable network of agents and low risk management of electronic value for a cheaper but secured solution to financial exclusion in low-income African countries (AfDB, 2012). Domestic mobile transfers dominated amongst the mobile money services and the bulk of these transactions occurred between urban and rural areas, as migrants to urban areas sent money back to the rural areas to support their extended families (UNCTAD, 2012). In 2006, it was unusual for mobile money to be used for anything other than

sending money in-country or topping up airtime. Mobile money has evolved into a more sophisticated proposition in recent years. International remittances, bill payments, merchant payments and bulk disbursements accounted for only 7.8 per cent of total transaction volumes in 2011. Five years on, this share had more than doubled to 18.8 per cent, with bulk disbursements, international remittances, and merchant payments becoming the fastest-growing products (GSMA, 2017).

Over the last decade, Africa had become a global leader in mobile money-cashless electronic payment that use mobile telephones as the main payment mechanism, rather than using a smartphone only as a conduit to a user's bank or credit card account. More than half the mobile money companies in the world operated in Africa. In 2014, the most recent year for which figures were available, the mobile money market in sub-Saharan Africa generated $656 million in revenue, according to industry analysts Frost and Sullivan (Unit, 2016). There were several reasons why Africa offered such fertile ground for mobile money service providers. First, only one in three people had a bank account. Second, the rate of smartphone adoption in Africa was twice the global rate. And third, that rate was growing fast: According to Swedish telecom equipment maker Ericsson, mobile internet usage in Sub-Saharan Africa was forecast to increase twentyfold between 2014 and 2019 (GSMA, 2014).

2.7.1.1.1 African case studies

2.7.1.1.1.1 M-Pesa

In early 2007, the leading mobile operator in Kenya, Safaricom (part of the Vodafone Group) launched one of the most successful implementations of a mobile money transfer service, M-PESA. The product was called M-PESA since "Pesa" was the Swahili word for money and the "M" was for mobile (Pulver, 2009). Figure 2.7 shows the M-Pesa logo.

Figure 2. 7: M-Pesa (Review, 2017)

M-Pesa subsequently evolved to become a fully-fledged mobile money service for both the banked and unbanked that includes (CISCO, 2013) and provided the following services:

1. ATM cash withdrawals.
2. Saving accounts, such as the M-Kesho account launched with Kenya's Equity Bank, paying interest and offering insurance and credit facilities to users.
3. On premise, retail payments through the Nunua na M-PESA (Buy Goods) service, enabling subscribers to pay selected retailers such as Uchumi and Naivas supermarkets using M-Pesa. Figure 2.8 below shows the mobile payment method.

Figure 2. 8: Mobile Payment (Dignified, 2018)

4. Mobile-ticketing booking and payment service for concerts and events.
5. M-Pesa included in Safaricom's popular Bonga loyalty program, so M-Pesa users can earn points on chargeable transactions that can be redeemed for Safaricom telecom products and also air miles.
6. Safaricom also offers corporate M-Pesa accounts that have higher transaction limits than for individual consumers. Corporate account holders can use M-Pesa to make bulk B2C payment and they can also receive funds and bill payments from individual M-Pesa users.

2.7.1.1.1.1.1 Popularity of M-Pesa

What made M-Pesa to be implemented without difficulty was because Safaricom comfortably enjoyed a large lead in market share in the robust Kenyan cell phone market. Safaricom reportedly controlled approximately 80% of the market, meaning the service for their phones was already reaching nearly the entire population. There was no need for the renovation of these towers or acquisition of new ones. On the demand side, this extensive coverage allowed the company to build good relationships with its large customer base. The new goal was to expand this network and create as much market penetration as possible (Hinz, 2014). Safaricom partnered with five other international money transfer providers to enable Kenyans in the diaspora to send money to the M-Pesa accounts of the firm's customers in Kenya. The partnering organizations are mHITs in Australia, PostFinance in Switzerland, Xendpay and SkyForex in the UK (Ntara, 2015).

2.7.1.1.1.2 Case study: Zoona

Zoona is a low-cost mobile payments system provider in Zambia, joined the Business Call to Action in 2012 with the goal of enabling financial inclusion for the poor and unbanked. Zoona was launched in 2009 to serve the unbanked in Zambia with a money transfer service using a network of micro and small enterprise agents to offer instant, over-the-counter money transfers within Zambia to primarily the unbanked population. Owing to low bank penetration outside of urban areas and the price of banking facilities, the proportion of adults with financial access, both formal and informal, increased from 37.3% to 59.3% between 2009 and 2015 against the target of 50 percent set by the Government (Jumbe Ngoma, 2015). Financial inclusion was a priority for the World Bank Group to meet the challenge of achieving Universal Financial Access globally by 2020 and was vital to help overcome the challenge of eradicating extreme poverty and increasing shared prosperity. Figure 2.9 shows a Zoona Booth.

Figure 2. 9 Zoona Booth (Times, 2016)

Zoona's goals were to build a network of 3,000 micro and small entrepreneur (MSE) agents, distributors, and retailers across Zambia, enable transaction and financial services to 1 million end users per month by the end of 2015 and to increase the value of payments to USD 100 million per month in Zambia by the end of 2015 (Enright, 2015).

2.7.1.1.1.2.1 How It works

Zoona agents received money transfers in cash from individuals, for example, who specify the person to receive the transfer. The recipient was sent an SMS verification which could be redeemed in cash by the nearest agent. End consumers benefited from access to a safe, convenient

and fast financial service. In addition, Zoona launched a partnership with Airtel Money, the country's mobile network operator, where end consumers were able to go to Zoona agents to register for Airtel Money mobile wallet accounts and perform cash-in/cash-out transactions (Enright, 2015). This simplicity of the way it operated was key in the appropriateness of the service compared to most financial applications and platforms.

Figure 2.10 shows why Zoona was gaining market share among the other mobile financial service providers.

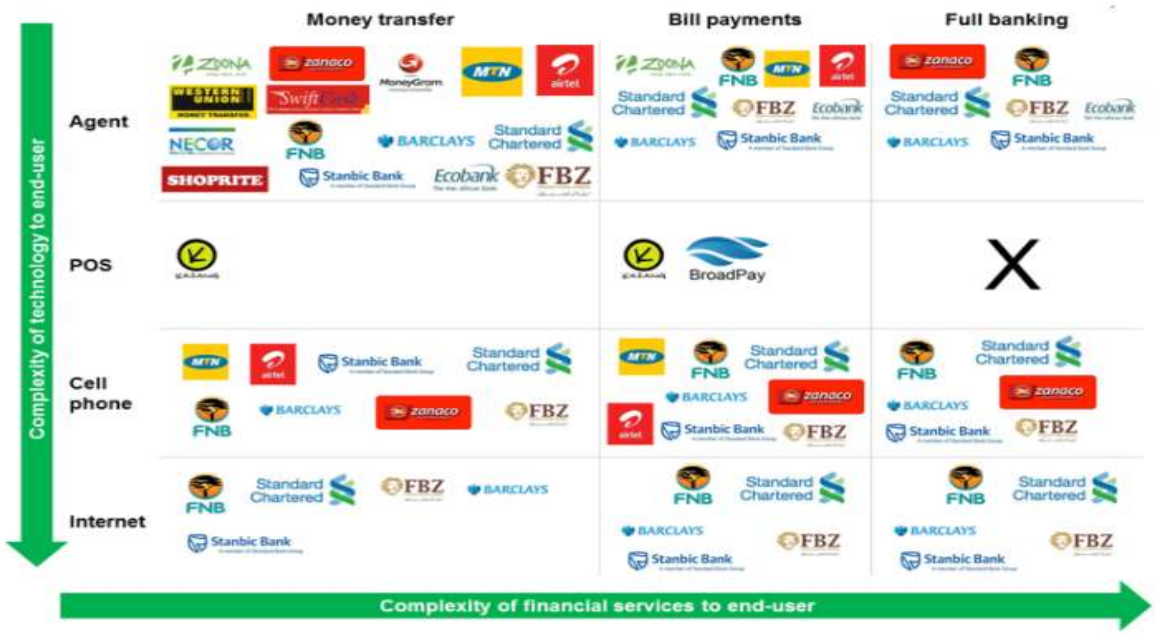

Figure 2. 10: Platform simplicity (Byun, 2015)

While there were a variety of providers in the industry Zoona's actual competitors were narrowed to the three which are ZamPost, MTN, and Airtel as the key market players with a focus on domestic P2P transfers and a sizable agent network.

Figure 2.11 shows the number of agents compared with other mobile financial service providers.

Figure 2. 11: Zoona Direct Competitors (Byun, 2015)

Zoona launched in 2017 a smartphone application on the google platform, Android which allowed individuals to register for mobile money and allowed then to send money to any network, buy talk time from mobile subscriber networks, pay bills for pay TV like DSTV and Go TV, allowed subscribers to view their transactional history and allows individuals to receive money sent to them easily (Zoona, 2017). For users that were not on Android Operating System, they could use the Unstructured Supplementary Service Data (USSD) to perform these functions. These features allow for the accessing, usage, and sending of funds to anyone within the country at any time reducing the agent interactions and distances to perform transactions. Figure 2.12 shows the Zoona mobile access.

Figure 2. 12: Zoona Mobile Access (Zoona, 2017)

Other Mobile Money Providers in Zambia

1. Airtel Money: Airtel Money was the phone-based service that allowed you to manage your money directly from your mobile phone from wherever and at any time you want. It allowed for a customer to hold a mobile wallet (approved and sanctioned by the Bank of Zambia) and hold kwacha equivalent value (E-value) on this wallet that they could use to purchase goods and services with (Airtel, 2018). Airtel Money provided the following services (Airtel, 2018):
    1. Send and receive money to any mobile number in the country, send money from your airtel Money account to your bank account, check your bank balance and mini statement and Deposit and withdraw cash.
    2. Top up airtime to your number or another airtel number and Data bundles purchase.
    3. Pay for utilities – ZESCO, LWSC, Nkana Water and sewerage, GOTV and DSTV.
    4. Payment of salaries to employees, casual labourers Allowances.
    5. Pay for goods and services to select merchant partners.
2. MTN Money: MTN Mobile Money was also a phone-based service that allowed the sending and receiving of money with additional services like payments to service providers

like DSTV, GOTV, purchase of airtime and waters bills among others (MTN, 2018). Figure 2.13 shows a booth used for MTN money.

Figure 2. 13 MTN Mobile Money Booth (FourSquare, 2018)

Merger of Zoona with Airtel Money

Both Airtel and MTN are two of the popular mobile transfer agents in Zambia (Dzokoto, 2016). In 2013, the two providers entered a partnership which allowed both companies to collaborate to

provide more comprehensive mobile money financial services to Zambian consumers (Airtel, 2013). The partnership meant that Airtel money customers would access all Airtel money services at both the Airtel centres and the Zoona centres across Zambia and help all Airtel customers to register their Sim cards at any Zoona Centre, hence quickening the process. In mergers like these, ICTs played a major role in harmonizing databases when there was an exchange of monetary values between the two service providers as changes were communicated in real-time during transactions.

2.7.1.1.2 Challenges of Mobile Money in Africa

Despite its rapid growth, the mobile money industry faced some distinct challenges in Africa. First, there was the difficulty of recouping the initial investment in infrastructure. To succeed in Africa, mobile money services needed to be relatively inexpensive, so tariffs needed to be very low and to get people to use a system, companies had to make a significant initial investment, including the capital investment in the technology as well as building a ubiquitous network of cash-in and cash-out agents (Unit, 2016).

Second, fraud remained a huge problem, one that was not often widely communicated. A recent report published by the Central Bank of Kenya noted that "mobile money service providers reported the highest instances of fraud at 37% of transactions (compared to 10% for bank agents)" (Unit, 2016). Fraudulent practices included the use of fake phone numbers that gave crooks access to funds and to the PIN numbers used by customers to make payments via PIN-encrypted text messages; and the use of counterfeit phones that used duplicate IMEI (International Mobile Equipment Identifier) codes, making it difficult to identify fraudsters using those phones.

2.7.1.2 Online Shopping

Online shopping is the activity or action of buying products or services over the Internet. It means going online, landing on a seller's website, selecting something, and arranging for its delivery. The buyer either pays for the good or service online with a credit or debit card or upon delivery (News, 2018). Online implying the use of the Internet to access resources or sellers and merchants. Online shopping was gaining popularity not only through websites but also through Mobile Apps. The word "app" is a noun, and it's short for "application." Application in this case referred to a software application, in other words, an app is a software program (Trends, 2015). The Difference was that a mobile app was a program that was downloaded and installed onto a user's mobile device,

whereas a mobile website was simply a website adapted to Tablet and smartphone formats (Unitag, 2018). The growth of e-commerce was a unique opportunity to open access to international markets for small and medium-sized enterprises (SMEs) in developing and least developed countries (Center, 2015). In this way, SMEs were open to many markets and opportunities as business transactions were found readily and with less difficulty.

The following were some of the benefits of Online Shopping (Series, 2015):

1. Convenience: Online stores were open 24 hours a day and are accessible from any location with an Internet connection.
2. Selection: Online stores could carry more selection than traditional stores because online stores did not need to attractively display their items on shelves and they can keep a larger amount of inventory on hand.
3. Information: Online shops had the tendency of provide more information about items for sale compared a physical store. Product descriptions most often included a description from the manufacturer, another description from the vendor, specific technical and size details, reviews from professional magazines and journals, and reviews from people who have bought the product.
4. Price: Because online stores did not have to pay rent for a storefront in a nice part of town and had a tendency to sell much larger quantities of goods, they offered to sell products for a much lower price.

Disadvantages of Online Shopping (Series, 2015):

1. Hands-On Inspection: There was a lack of experience concerning seeing and touching the item you were considering buying. For example, clothes shopping could be very tricky online, because there was no trying on clothes before you buy them. There could also be details in a product that aren't noticeable until it is delivered.
2. Shipping: Some major online retailers offered free shipping for their products, but many required individuals to meet a minimum order cost to qualify or only offer this incentive at certain times of year. In general, you should expect to pay an additional shipping cost on top of the price of the items that you order.
3. Wait Time: Waiting for an item to arrive was another downside of online shopping. One of the great pleasures of shopping at a store was the instant gratification meaning when an

individual notice something and they like it, they paid for it, and it was taken home to use it. In the case of online shopping, there was waiting for an item for days or even weeks for the item to arrive.

4. Privacy: When shopping online, there were certain privacy rights that are waivered to the online retailer. Online stores thereafter could track purchases of individuals who shopped with them over time giving them suggestions of things they might like to buy, e-mails with sale information, and, occasionally, sell contact information to other companies.

2.8 Related Works

1. Domenico Consoli (Consoli, 2012): Analysed literature on determinant factors that stimulate the adoption and use of ICT and the impact on organizations. For good business performances it is important to align organisational and productive processes with ICT tools; adequate conditions favour the best ICT implementation. The paper outlined the Factors of ICT adoption as individual, organizational, environmental, technological and economical. Figure 2.14 shows the determinant factors for ICT adoption.

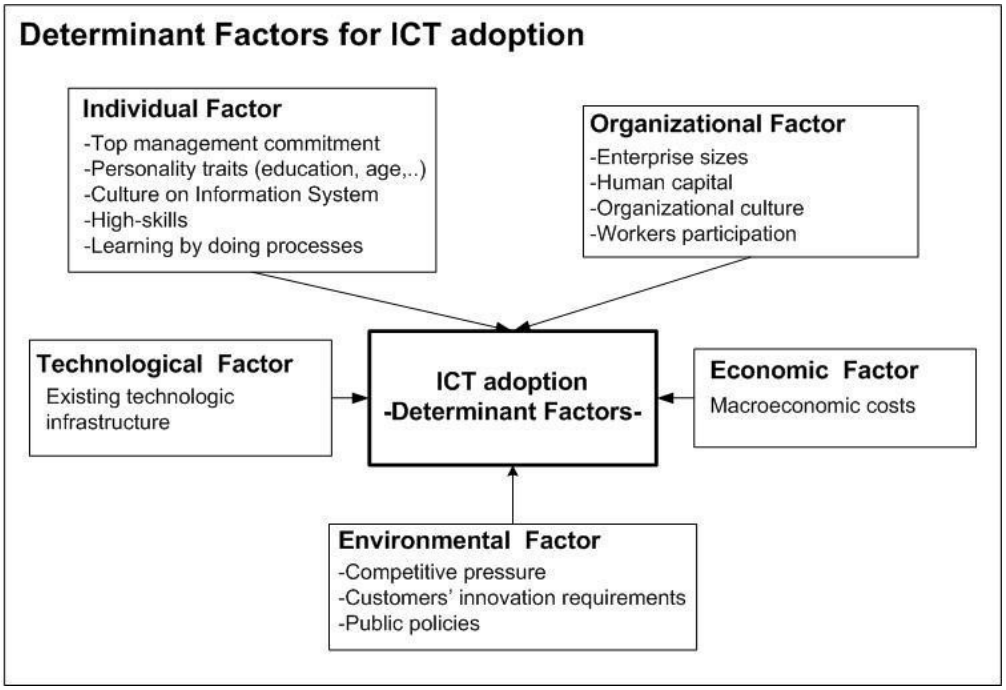

Figure 2.14: Determinant Factors for ICT Adoption

The study noted that Companies, over a period of time, innovated their information systems for different reasons like the inadequacy of their management software, lack of data integration, the membership to a group where a renewal process was implementing, a few companies adopted a more proactive approach, encouraging and supporting the replacement of the system, with a greater long-term strategic vision (Consoli, 2012).

2. Asta Tarutė and Rimantas Gatautis (Asta Tarutė, 2013): The results of the work confirmed that ICT had impact on the improvement of external and internal communication and that for best performances it was important to align ICT investments with internal capabilities and organizational processes. Technology itself was not as important as the induced social and economic achievements. The paper provided theoretical evidence on the direct and indirect effects of ICT on SMEs performance. In summary, it suggested that ICTs can improve overall, financial and operational performance of SMEs if it is used appropriately. It was well known that marketing, communication, networking and resource planning were the areas that ICT impacts the most (Asta Tarutė, 2013).
3. (Apulu, 2010): The study reviewed some benefits associated with the use of ICT with reference to a Nigerian SME and also identified some problems facing the Nigerian SME sector. The study revealed that the use of ICT in Nigerian SMEs was relatively low due to many factors militating against their growth. For Nigerian SMEs to effectively use ICT, technological infrastructures were required to be put in place by the government to support ICT use (Apulu, 2010).
4. (Mukonje, 2012): The research was about the impact of ICTs on SMEs in Kitwe. The study found out that that ICTs were becoming increasingly important in running successful businesses, achieving development goals and promoting citizen participation in the development of the country.

2.9 Technology acceptance theories and models

Researchers in the area of Information Systems and Information Technology are interested in investigating the theories and models that will have power in predicting and explaining behaviour across many domains. The main objectives of these studies are to investigate how to promote usage and also examining what hinders usage and intention to use the technology. Each prominent technology acceptance theory or model which has not been superseded by more recent research has different premises and benefits. It is therefore important to study them intentionally, since it

is expected that theoretical concepts from these theories will help to provide a sound basis for the theoretical framework for creating a research model that could properly demonstrate the acceptance of Technology for this research (Kripanont, 2007).

2.9.1 Technology Acceptance Model (TAM)

Originally proposed by Davies in 1986 (Davis, 1986). The model is originally designed to predict users' acceptance of Information Technology and usage in an organizational context. TAM focuses on the attitude explanations of intention to use a specific technology or service; it has become a widely applied model for user acceptance and usage. There are a number of meta-analyses on the TAM that have demonstrated that it is a valid, robust and powerful model for predicting user acceptance. Figure 2.15 shows the Technology Acceptance Model (Davis, 1986).

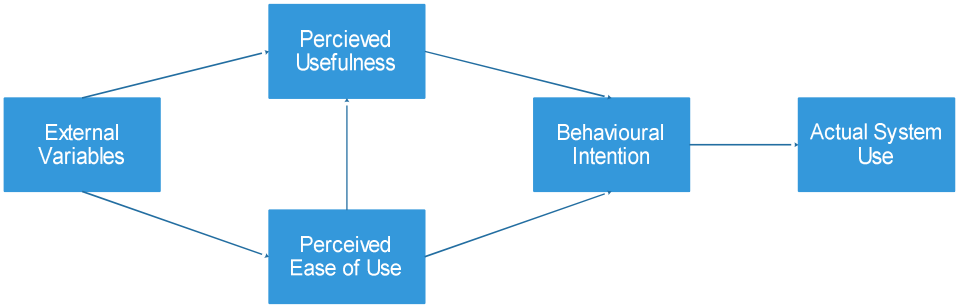

Figure 2.15: Technology Acceptance Model (TAM)

TAM introduced perceived ease of use and perceived usefulness as the two main factors that influence computer usage behaviour. These two determinants serve as the basis for attitude towards using a particular system, which in turn determines the intention to use and then generates the actual usage behaviour. According to TAM, perceived ease of use refers to the extent to which a person feels that using a particular technology would be free of effort (Ali Salman, 2014).

2.9.2 Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT model which aims to explain technology acceptance, is based on eight technology acceptance theories or models. In particular, the UTAUT draws on the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), the Motivational Model, the Theory of Planned Behaviour (TPB), the combined TAM and TPB, the model of Personal Computer Utilization, the Innovation Diffusion Theory and the Social Cognitive Theory (Venkatesh, et al., 2003). At the core, the UTAUT model uses behavioural intention as a predictor of the technology use behaviour.

The included predictors of behavioural intention are based on the components the eight technology adoption models reviewed as shown in Figure 2.16 (Troy, et al., 2013).

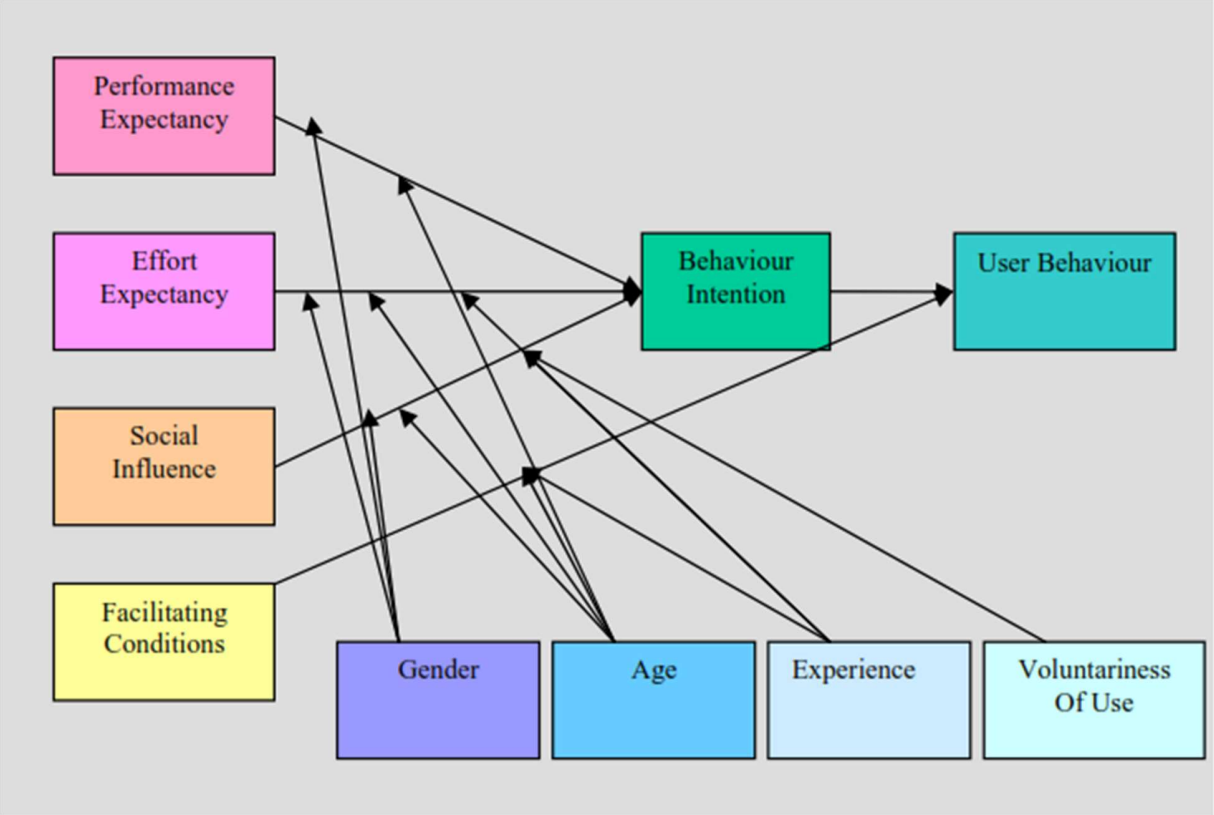

Figure 2.16: Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, et al., 2003)

2.10 Chapter Summary

In this chapter, studies were done on Mobile Money operators in Africa and Zambia, transport and other financial SMEs among others on the impact of ICTs on their businesses and effectiveness, some of the User Acceptance Models and the similar studies done together with their findings.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research design

The research was designed for SMEs both in formal and informal businesses in order to obtain results that provides for clear understanding on the use if ICTs in their businesses. It used a qualitative approach through the use of questionnaires distributed to respondents in businesses which built up the quantitative information that was analysed to draw up results and conclusions.

3.2 Population and sampling

A sample population of 100 SMEs were targeted, with 60 among the informal SMEs and 40 the registered SMEs within the city of Lusaka. These covered different sectors and categories in order to capture the diverse responses from a wider sample and the study adopted the Stratified Sampling technique.

3.3 Research instruments

Two different questionnaires were designed for the two SME groups, with the one for formal SMEs more detailed than the other due to the nature of the businesses and targeted individuals. The questionnaires were designed ably allowing them to capture more information and provide accuracy for the study. The Questionnaire was preferred as the researches tool for data collection, since they are found to be sTable, consistent, and uniform offering a considered and objective view of issues, which therefore allowed development of valid inferences from the study (Otieno, 2015).

Each respondent was provided with a copy of the questionnaire, explained how the questionnaire was to be filled out and collected. This allowed for enough time to fill up the questionnaire without interfering with their work. Their responses formed the basis for the analysis and subsequent discussions.

3.4 Conceptual framework

3.4.1 Market characteristic

According to (Mwai, 2016), the geographical location of an SME had a major impact on its operations and profitability. The geographical location of an SME greatly determined the profile of its visitors, the size of its market and the level of competition that it had to face. Based on the profile of an SME, the size of the market, or the intensity of competition, SMEs differed in their

levels of ICT adoption propensity. The research was designed to extract this information form the SMEs targeted

3.4.2 Customer characteristics

The rapid development and commercialization of information and communication technologies (ICTs) for use in businesses by SMEs prompted to adopt these technologies. The study aimed at researching the key areas which SMEs believe could enhance trading with type of customers they target. The research was designed to extract this information form the SMEs targeted.

3.4.3 Initial ICT installation and running costs

The initial cost and installation of ICTs were found to be the most important factor in their adoption by SMEs according to (Mohd & Alam, 2009). The lower the cost of initial installation or investment, the higher rate of adoption of ICTs. In this study, the data collection tool was designed well in order to capture the information.

3.4.4 Economic and political characteristics

The importance of SMEs to the economy of a country indicated how important it was to have government policies that supported SMEs, including regulations that enabled them to operate efficiently and regulations that reduced their administrative costs according to (Govori, 2013). The study encompassed aspects of government regulation and the polices planned for the adoption and use of ICTs among SMEs.

3.5 Research framework

The research framework demonstrates the many aspects taken from the literature review using the adoption theories. The research model also derived from earlier findings on ICT adoption in small businesses. The model was used to examine the impact of the independent variable on the dependent variable. The independent variables include market characteristics, customer characteristics, initial ICT installation and running costs and the ICT characteristics. Figure 3.1 below shows the research framework.

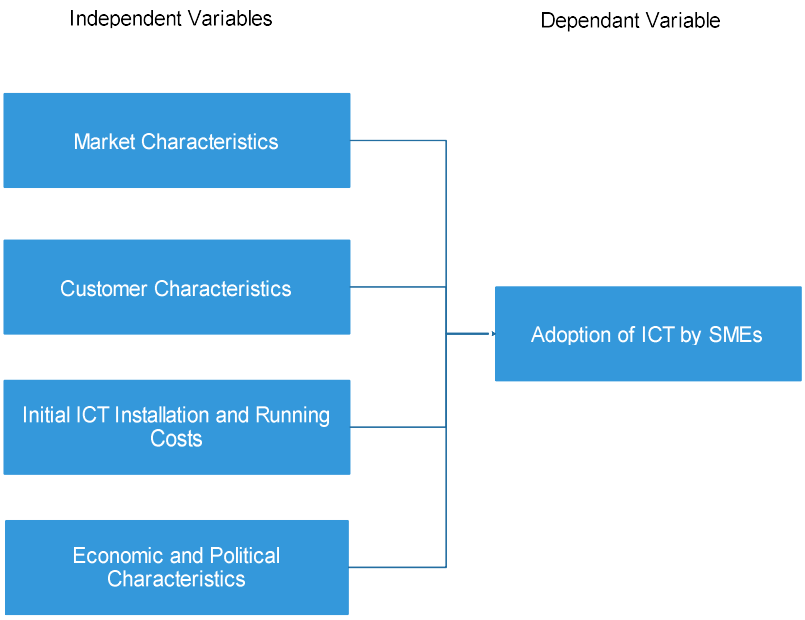

Figure 3.1: Research Framework

The above framework was built using the existing literature and knowledge by borrowing from previous research on ICT adoption done both locally and internationally. The conceptual framework used to investigate the impact of the independent variables which include Market Characteristics, Customer characteristics, Initial ICT installation and running costs and the Economic and Political characteristics on the adoption of ICTs by SMEs.

3.6 Data analysis

The qualitative data collected through the use of questionnaires lead to the quantitative information which was analysed using the Statistical Software, Statistical Package for the Social Sciences (SPSS). This enabled the creation of descriptive frequency Tables, graphs and comparative means that were used. Content analysis involving the interpretation of views and perceptions was used to analyse qualitative data.

3.7 Limitation of the study

The study was limited to SMEs in the city of Lusaka running formally and informally registered businesses. This was due to the limit on the amount of time required to conduct the research and

the research budget. It leaves out the SMEs that are out of Lusaka and those that are in commercial farms around.

3.8 Chapter Summary

This chapter discusses the research design purpose which the research was designed for, population and sampling showing the type of SMEs targeted and the sampling technique, the research instrument used, research framework, how the data was analysed and the limitation of the study.

CHAPTER FOUR

PRESENTATION OF THE RESEARCH FINDINGS

4.1 Overview

This chapter provides the results of the study as specified in the research methodology. It provides the quantified responses from the qualitative information collected through the questionnaires that were distributed to the 100 SMEs.

4.2 Survey findings

The response from the registered firms to the questionnaires was higher than that obtained from SMEs without formal registration mostly because of the individuals involved in providing the requested information did not take the questionnaire seriously and some thought of it as a competitor strategy to obtain their business model. The registered firms recorded a positive response of 87.5% of the total questionnaire's issued while the non-registered firms had a response of 76.7% as shown by Figure 4.1.

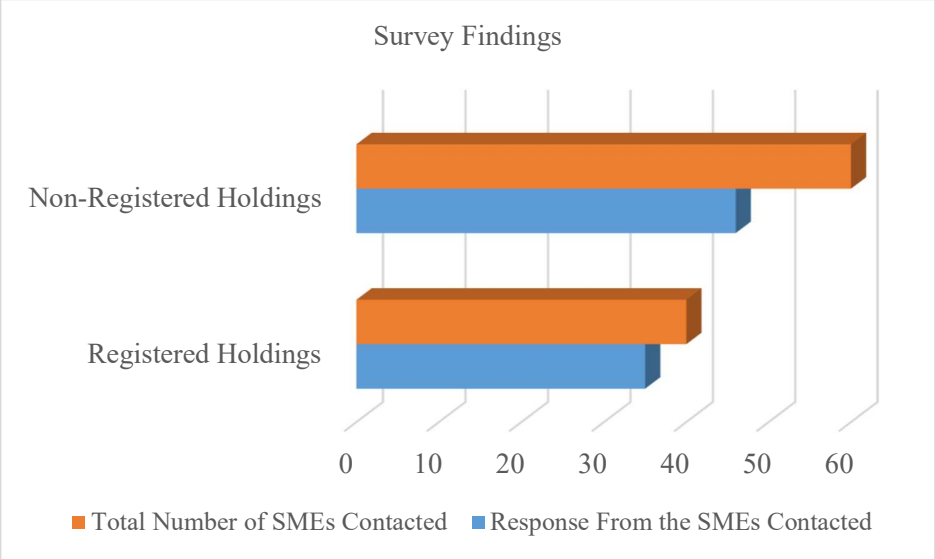

Figure 4.1: SME Respondents

4.2.1 Registered SMEs

The study conducted was empirical in nature and was based on sample data which was obtained by means of a survey instrument distributed from 34 registered SMEs with holding and 46 SMEs

with no holding or registered companies in Lusaka from a total of 40 and 60 questionnaires sent to firms respectively. Figure 4.2 shows the responses from the SMEs.

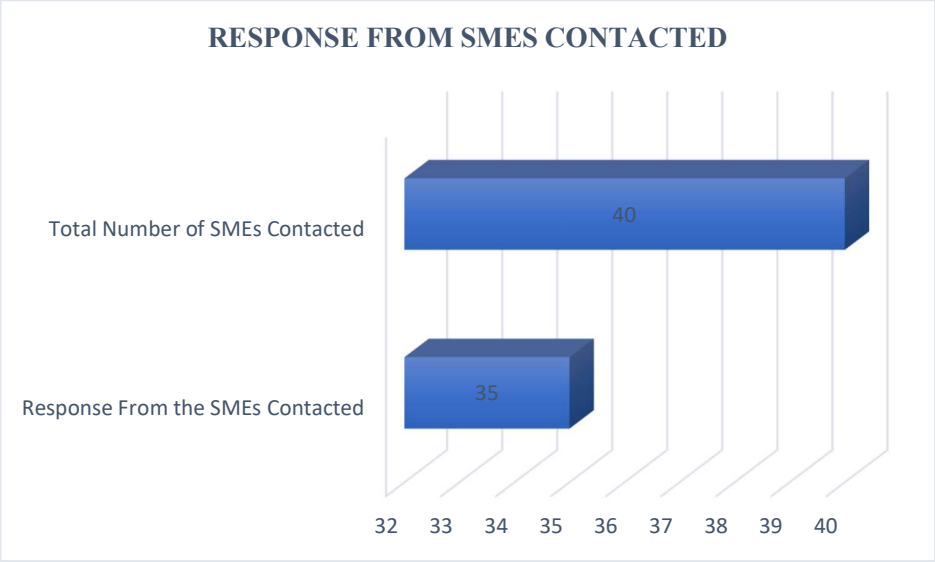

Figure 4.2: Response from Registered SMEs Contacted

4.2.1.1 SME Categories

The categories covered in registered firms were Manufacturing, Trading, Services and Mining. The intention was to understand their application of ICTs in their businesses and the challenges they face in enhancing their operations using ICTs. From the information collected, the Services category had the highest percentage with 50%, followed by the Trading category with 26.5%. The rest were the Manufacturing with 20.6% and Mining with 2.9%.

Below is Table 4.1 showing a representation of the samples by industry category:

Table 4.1: SME Categories

SME Category					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manufacturing	7	20.6	20.6	20.6
	Trading	9	26.5	26.5	47.1

	Services	17	50.0	50.0	97.1
	Mining	1	2.9	2.9	100.0
	Total	34	100.0	100.0	

4.2.1.2 SME Owner Nationality

All the Business Owners from the study were Zambian Nationals accounting for 100%. Table 4.2 shows the details:

Table 4.2: Nationality

Nationality					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Zambian	34	100.0	100.0	100.0

4.2.1.3 SME Business Owners

From the survey, most of the business owners were male representing 55.9% of the sample population, while the female owners had 2.9%. Firms with both male and females had 41.2% representation. Table 4.3 and Figure 4.3 shows the presentation.

Table 4.3: Business Owner

Business Owner					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	19	55.9	55.9	55.9
	Female	1	2.9	2.9	58.8
	Both	14	41.2	41.2	100.0
	Total	34	100.0	100.0	

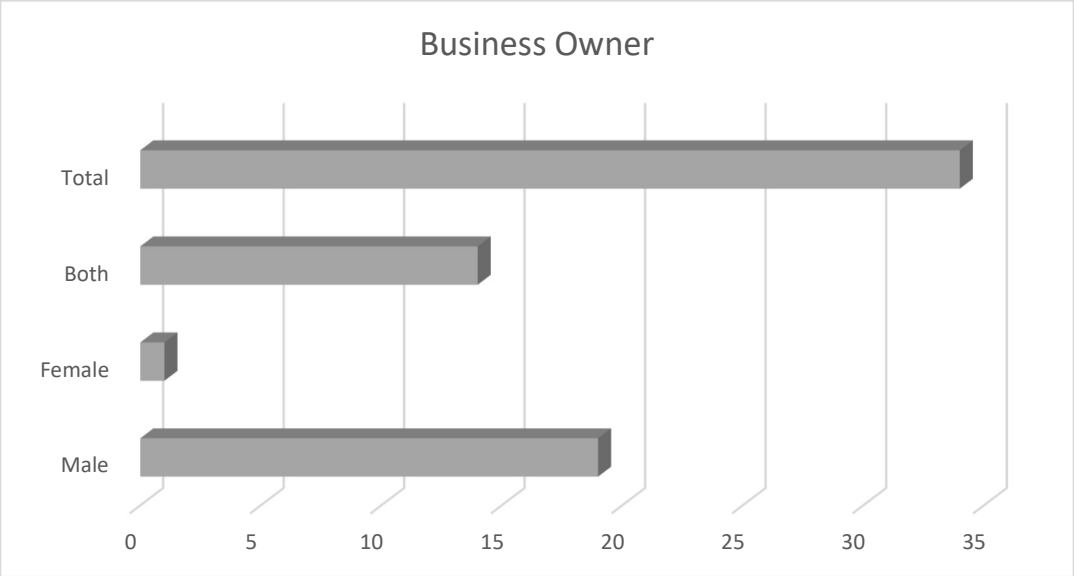

Figure 4.3: Business Owner

4.2.1.4 The use of ICTs

Firms that had implemented the use of ICTs in their operations made the highest representation in the research sample population with 38.2% followed by Web application with represented by 17.6% of the firms, same percentage as Electronic Commerce and together as Online Application accounted for 35.2%. Others were Banking with 14.7% and Mobile Banking with 5.9%. Mobile Application and Security were both represented by 2.9% of the sample population. SMEs embraced the use of ICT more in general operations as computerization and automation of processes showing to be key in the effectiveness and efficiency of conducting business. Web applications were also vital in SMEs conducting businesses because of the ease of reaching to customers instantly and in an affordable way. Advertisements could be done online at cheaper costs, exchange of information through web portals, Social Media advertisements through ads at convenient prices and online payments among other uses. Using Bank portals enabled SMEs to schedule payments, manage and transfer funds. Mobile applications were popular among SMEs through usage of platforms like Unstructured Supplementary Service Data (USSD) that work with Quick Codes to operate and transact without the use of the Internet. These were preferred especially in areas that had no Internet connections. Point of Sale (PoS) was another platform on which mobile banking was practiced on as a device with cellular network communicates with the respective banks to transact. Table 4.4 below shows the usage of ICTs by the SMEs:

Table 4.4: The Use of ICTs

The Usage of ICT					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Banking	5	14.7	14.7	14.7
	E-Commerce	6	17.6	17.6	32.4
	General Operations	13	38.2	38.2	70.6
	Mobile Application	1	2.9	2.9	73.5
	Mobile Banking	2	5.9	5.9	79.4
	Security	1	2.9	2.9	82.4
	Web Application	6	17.6	17.6	100.0
	Total	34	100.0	100.0	

4.2.1.5 Reaction To ICT

From the respondents, 91.2% reported that ICTs have had a positive impact on their business with 5.9% providing for those that had negative impact. 2.9% were not convinced of any impact ICTs had on their firms. This showed the potential impact ICTs had on businesses in the future as shown from the respondents. Most believed their businesses will do even better as the technology improves. Table 4.5 represents the information:

Table 4.5: Reaction to ICT

Reaction to ICT					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	2	5.9	5.9	5.9
	Positive	31	91.2	91.2	97.1
	Positive/Negative	1	2.9	2.9	100.0

	Total	34	100.0	100.0	

4.2.1.6 Employee ICT training

After the implementation of ICTs in the organizations, the employees require new skills to handle the introduced technologies. From the study, all the respondents stated that they provide partial or full training in new ICTs introduced. The training was done in all firms contacted as they aimed at maximizing the investment made in implementing the ICTs. Table 4.6 shows this information.

Table 4.6: ICT Training

Employees Trained in ICTs					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	34	100.0	100.0	100.0

4.2.1.7 SME trading year

Trading years captured ranged from 1954 to 2018, with most registered after 2010. The representation of the Trading Years is as per the Table 4.7 and Figure 4.4:

Table 4.7: SME Trading Year

Trading year					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1954	1	2.9	3.1	3.1
	2000	2	5.9	6.3	9.4
	2002	1	2.9	3.1	12.5
	2004	1	2.9	3.1	15.6
	2005	3	8.8	9.4	25.0
	2006	1	2.9	3.1	28.1

	2007	1	2.9	3.1	31.3
	2009	2	5.9	6.3	37.5
	2010	2	5.9	6.3	43.8
	2011	3	8.8	9.4	53.1
	2012	1	2.9	3.1	56.3
	2013	3	8.8	9.4	65.6
	2014	5	14.7	15.6	81.3
	2016	4	11.8	12.5	93.8
	2017	1	2.9	3.1	96.9
	2018	1	2.9	3.1	100.0
	Total	32	94.1	100.0	
Missing	System	2	5.9		
Total		34	100.0		

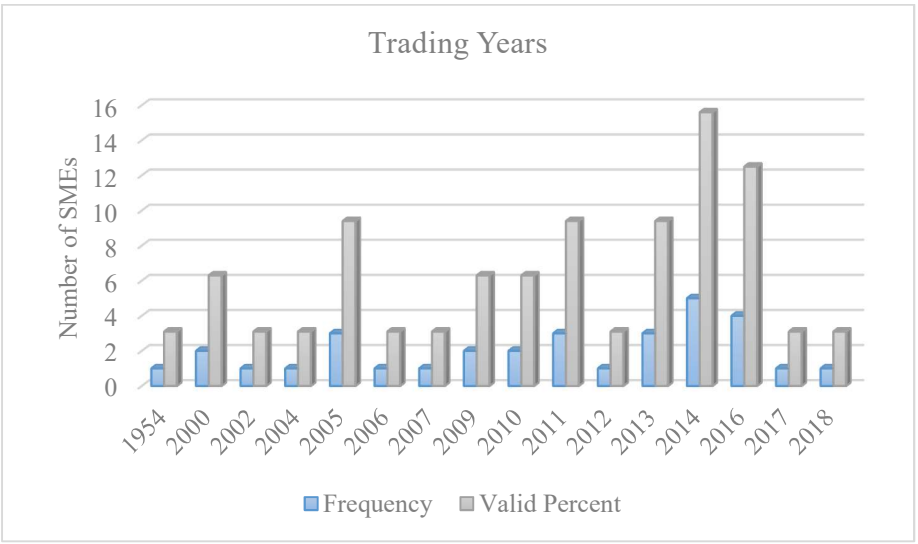

Figure 4.4: Trading years

4.2.1.8 Mobile money

The following were the representations of businesses and their use of Mobile Money and it represents exchange of money through the use of a mobile device. From the study, 82.4% of the SMEs agreed to the use of Mobile Money in their business transactions as shown by Table 4.8.

Table 4.8: Use of Mobile Money

Use Mobile Money Transactions					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	28	82.4	82.4	82.4
	No	6	17.6	17.6	100.0
	Total	34	100.0	100.0	

Easy to access was the major reason why SMEs prefer using Mobile Money with 44.1% of the sample population citing the availability of Mobile Money Booths in diverse locations made it easy to transact. The other reason for using Mobile Money was security with a representation of 17.6% of the sample population as SMEs are guaranteed that their transactions were protected for they regarded the service in high esteem. Other reasons included convenience in using it with small amounts representing 14.7%, accessibility with 11.8% and 8.8% representation each for client preference, core business and swift operation. Table 4.9 represents this information.

Table 4.9: Preference of Mobile Transactions

Preference of Mobile Transactions					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Convenient for Small Amounts	4	11.8	11.8	11.8
	Easy to Access	15	44.1	44.1	55.9
	Security Purposes	6	17.6	17.6	73.5

	Preferred by Clients	3	8.8	8.8	82.4
	Core Business	3	8.8	8.8	91.2
	Quick and Easy	3	8.8	8.8	100.0
	Total	34	100.0	100.0	

4.2.1.9 Impact of ICT on customer satisfaction

Customer retention was one of the core objectives of SMEs when conducting business because it was difficult to expand and explore new markets if a business experiences a high customer churn rate. Customer satisfaction therefore was one of the main reasons that made customers continue trading with SMEs and the use of ICT was engaged to enhance the level of customer satisfaction. The Table below shows that over half of the businesses in the study had ICTs impact their business moderately with a representation of 70% and strongly with 6.7%. Slight impact was represented by 10% and those with no impact 6.7%. Table 4.10 and Figure 4.5 shows the impact of ICT on customer satisfaction.

Table 4.10: Impact of ICT on Customer Satisfaction

ICT Impact on Customer Satisfaction in the last 5 years					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No Impact	2	5.9	6.7	6.7
	Slight Impact	3	8.8	10.0	16.7
	No Difference	2	5.9	6.7	23.3
	Moderate Impact	21	61.8	70.0	93.3
	Strong Impact	2	5.9	6.7	100.0
	Total	30	88.2	100.0	
Missing	99.00	4	11.8		
Total		34	100.0		

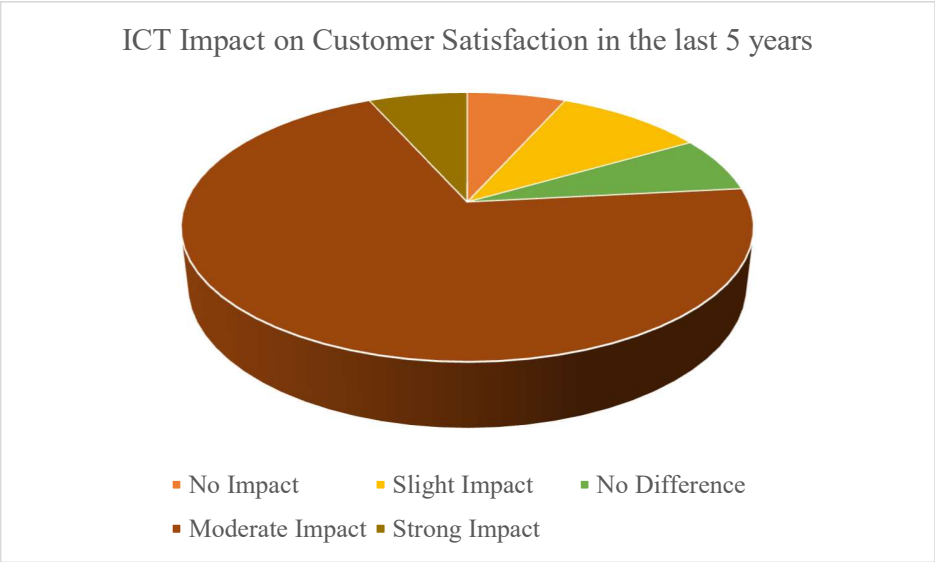

Figure 4.5: Impact of ICT on Customer Satisfaction

4.2.1.10 ICT proficiency

ICT Proficiency refers to the ability of individuals in the usage and implementation of ICTs. Most users were found to be average accounting for 70.6% and advanced users had 23.5%. Learners were represented by 5.9% of the sample population. The high rate of average users could be linked to the investment in training done by the firms after the introduction of new ICTs in the business. Table 4.11 shows the ICT Proficiency of workers associated to the firms under study:

Table 4.11: ICT Proficiency

Proficiency in ICT					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Learners	2	5.9	5.9	5.9
	Average users	24	70.6	70.6	76.5
	Advanced Users	8	23.5	23.5	100.0

	Total	34	100.0	100.0	

4.2.1.11 Firm Revenue

From the survey, there were 41.2% of firms that had Revenue less than K200 million and those with K200-250 million representing 32.4%. Firms with higher revenue in the Range K250 million to K400 million represented 20.6% of the sample population. Two of the respondents did not provide their Firm Revenue representing 5.9%. Table 4.12 and Figure 4.6 shows the firm revenue.

Table 4.12: Firm Revenue (K)

Firm Revenue					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Missing	2	5.9	5.9	5.9
	200-250 million	11	32.4	32.4	38.2
	250-400 million	7	20.6	20.6	58.8
	Less than 200 million	14	41.2	41.2	100.0
	Total	34	100.0	100.0	

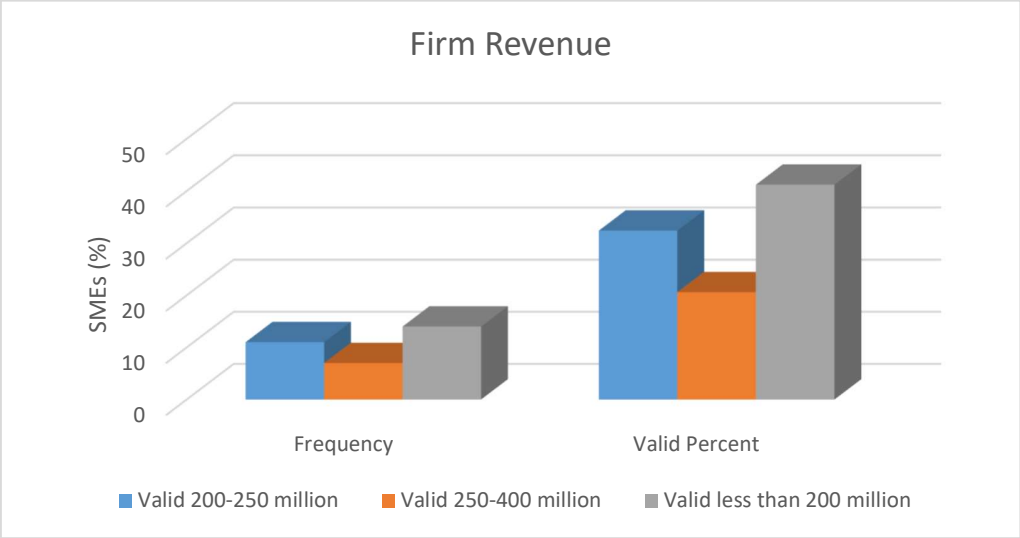

Figure 4.6: Firm Revenue

4.2.1.12 ICT Investment

The reasons for investment in ICTs differed among firms. In this study, increase in Production was found as the major cause in investing in ICTs representing 32.4% of the sample population. Automation of operations such as business functions, financial management, printing and other operational activities was one of the major reasons with a representation of 23.5% same with the request from the Market as clients demand modes of conducting business. Other determinants were pressures to grow businesses and connection services representing 11.8% and 5.9% respectively. Table 4.13 and Figure 4.7 shows the determinant of ICT investment.

Table 4.13: ICT Investment

Determinant of ICT Investment					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Production	11	32.4	32.4	32.4
	Market Demand	8	23.5	23.5	55.9
	Business Growth	4	11.8	11.8	67.6
	Operations	8	23.5	23.5	91.2

	Availability of Connection Services	2	5.9	5.9	97.1
	Missing	1	2.9	2.9	100.0
	Total	34	100.0	100.0	

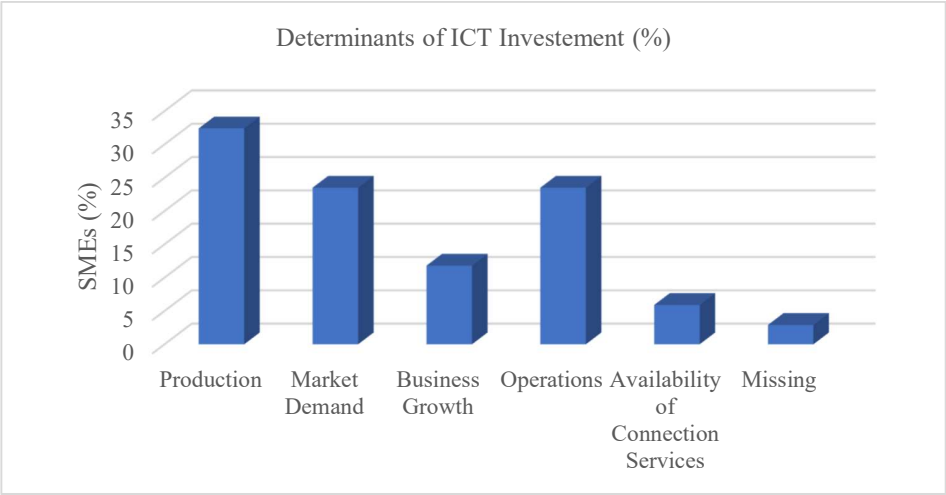

Figure 4.7: Determinant of ICT Investment

4.2.1.13 Firms ICT cost benefit analysis

The investment in ICTs could be measured to show how it was impacting on the business comparing with the cost of investment. This is called Cost Benefit Analysis. From the survey, 71% of the sample population did Cost Benefit Analysis to determine whether the investment in ICT repaid the firm or not. Table 4.14 shows the cost benefit analysis.

Table 4.14: ICT Cost Benefit

ICT Cost Benefit Analysis					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	22	64.7	71.0	71.0
	No	9	26.5	29.0	100.0

	Total	31	91.2	100.0	
Missing	99.00	3	8.8		
Total		34	100.0		

4.2.1.14 ICT annual budget

ICT budgets were decided during the financial year planning and businesses decided what they would invest in. Table 4.15 and Figure 4.8 shows the average annual budgets firms allocate to ICT investments

Table 4.15: ICT Annual Budget

Statistics		
Average Annual ICT Budget		
N	Valid	30
	Missing	4
Mean		49750.0000
Median		30000.0000
Std. Deviation		65667.23190
Range		349000.00
Minimum		1000.00
Maximum		350000.00

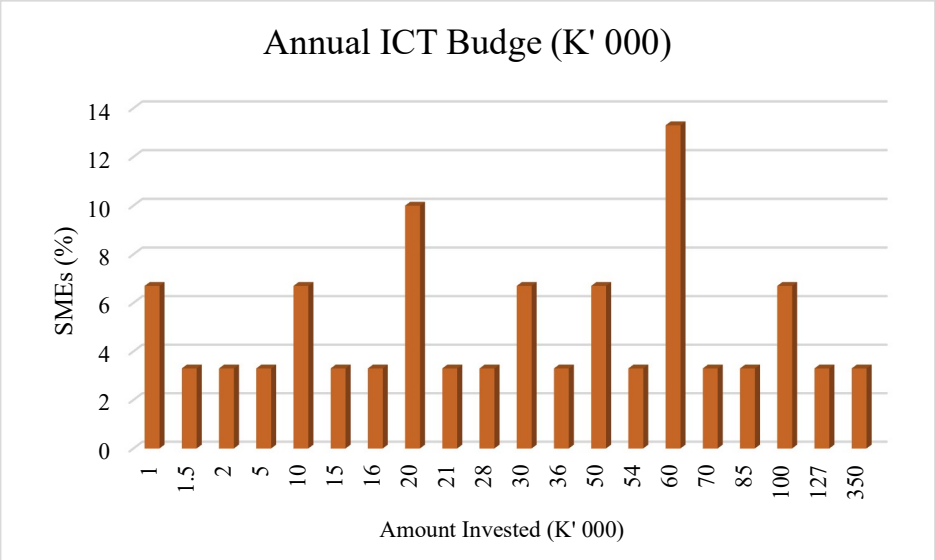

Figure 4.8: ICT Annual Budget

4.2.1.15 Strategic Plans For ICT

Strategic planning for ICT in businesses is the scheduling of resources and time for the implementation of ICTs in a time frame forthcoming. From the study, it was recorded that 46.7% of the firms had in place strategic measures to implement ICTs in their business with 53.3% having no plans to do so. The major reason that was cited on the lack of planning for ICT was the expense that was associated with the implementation and breaking-even was the ultimate objective for most start-up business. Table 4.16 illustrates this information.

Table 4.16: Strategic ICT Planning by Firms

Strategic Plans for ICT					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	14	41.2	46.7	46.7
	No	16	47.1	53.3	100.0
	Total	30	88.2	100.0	
Missing	System	4	11.8		
Total		34	100.0		

4.2.1.16 Firm Performance

Businesses were requested to provide their performance for the period of four years starting with 2014 to 2018. The responses are represented by Tables 4.17, 4.18, 4.19, 4.20, 4.21 and by Figure 4.9.

Table 4.17: Production 2014

Productivity level in 2014					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased	19	55.9	73.1	73.1
	Constant	7	20.6	26.9	100.0
	Total	26	76.5	100.0	
Missing		8	23.5		
Total		34	100.0		

Table 4.18: Production 2015

Productivity level in 2015					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased	18	52.9	66.7	66.7
	Constant	8	23.5	29.6	96.3
	Decreased	1	2.9	3.7	100.0
	Total	27	79.4	100.0	
Missing	99.00	7	20.6		
Total		34	100.0		

Table 4.19: Production 2016

Productivity level in 2016					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased	23	67.6	76.7	76.7
	Constant	5	14.7	16.7	93.3
	Decreased	2	5.9	6.7	100.0
	Total	30	88.2	100.0	
Missing	99.00	4	11.8		
Total		34	100.0		

Table 4.20: Production 2017

Productivity level in 2017					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased	27	79.4	87.1	87.1
	Constant	3	8.8	9.7	96.8
	Decreased	1	2.9	3.2	100.0
	Total	31	91.2	100.0	
Missing	99.00	3	8.8		
Total		34	100.0		

Table 4.21: Production 2018

Productivity level in 2018					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased	27	79.4	81.8	81.8

	Constant	5	14.7	15.2	97.0
	Decreased	1	2.9	3.0	100.0
	Total	33	97.1	100.0	
Missing	99.00	1	2.9		
Total		34	100.0		

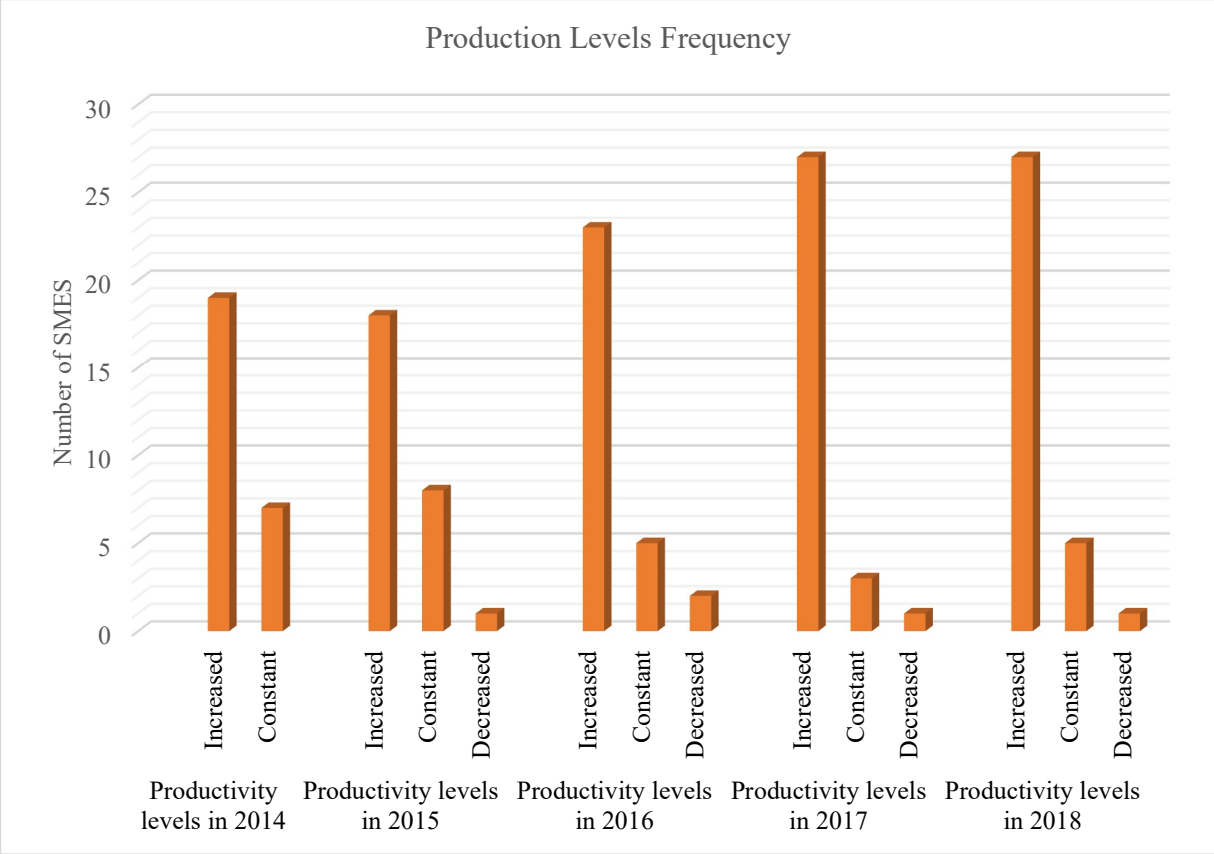

Figure 4.9: Production Levels

From the information collected, it was found that businesses that implemented ICTs had a steady increase in productivity with the progression of the years. This was alluded to the fact that costs were reduced in the production of goods and provision of services and firms were able to allocate funds from operational costs and invest in increasing the business productivity. Issues like transport costs were eliminated in cases were movements were required, printing and binding of

documents were no longer essential as documents could be sent through emails and stationary use of toners and inks did not form part of the budget. The other major cost reduction factor was the automation of processes in conducting businesses which resulted in efficiency of operations.

Figure 4.10 shows the performance with regards the percentage over the period covering from 2014 to 2018.

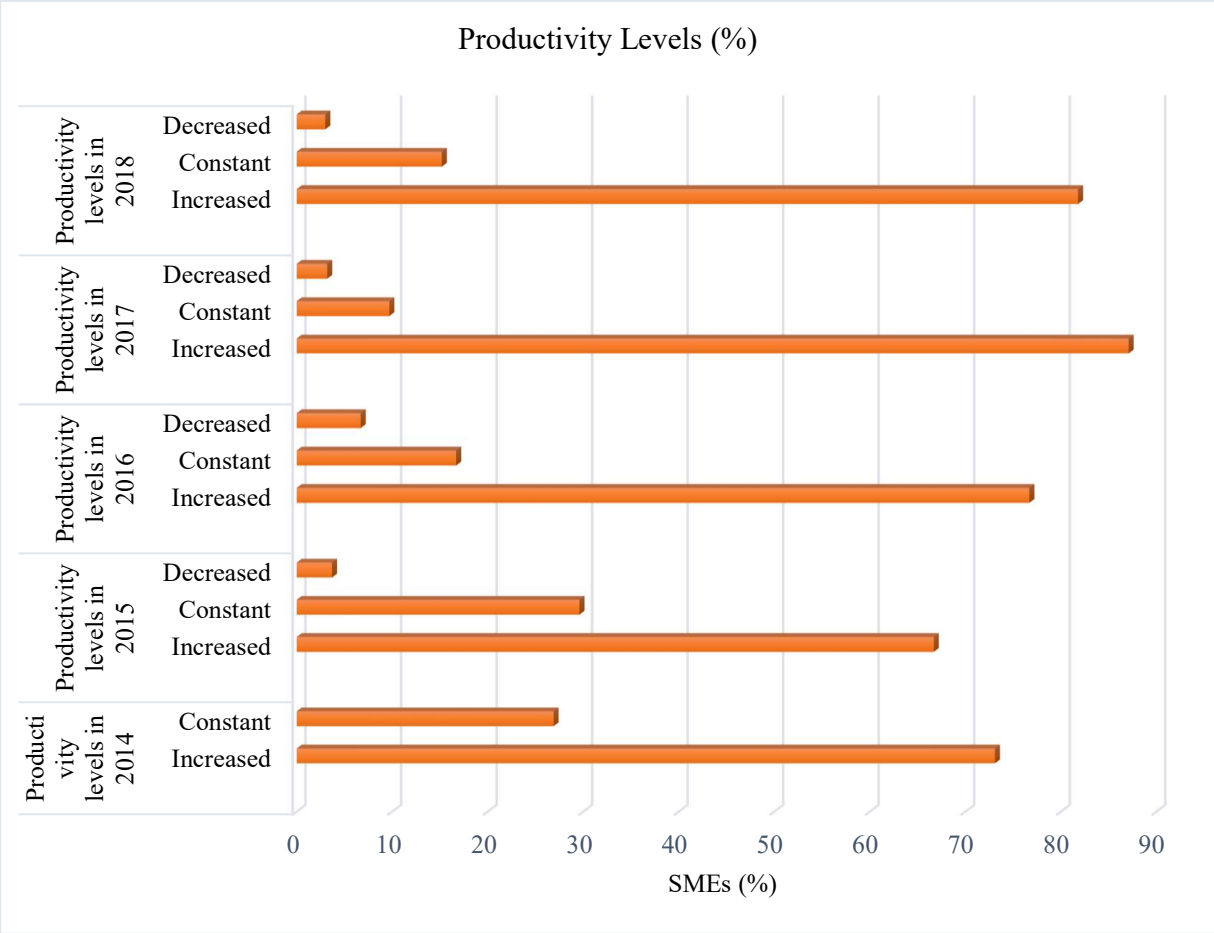

Figure 4.10: Productivity Levels (%)

4.2.1.17 Market share

The following Tables shows the trends in market share over four years by the firms under study shown by Tables 4.22, 4.23, 4.24, 4.25 and 4.26.

Table 4.22: Market Share 2014

Market Share in 2014					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased	14	41.2	41.2	41.2
	Constant	9	26.5	26.5	67.6
	Decreased	11	32.4	32.4	100.0
	Total	34	100.0	100.0	

Table 4.23: Market Share 2015

Market Share in 2015					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased	12	35.3	41.4	41.4
	Constant	12	35.3	41.4	82.8
	Decreased	5	14.7	17.2	100.0
	Total	29	85.3	100.0	
Missing	99.00	5	14.7		
Total		34	100.0		

Table 4.24: Market Share 2016

Market Share in 2016					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased	15	44.1	50.0	50.0
	Constant	11	32.4	36.7	86.7

	Decreased	4	11.8	13.3	100.0
	Total	30	88.2	100.0	
Missing	99.00	4	11.8		
Total		34	100.0		

Table 4.25: Market Share 2017

Market Share in 2017					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased	20	58.8	69.0	69.0
	Constant	6	17.6	20.7	89.7
	Decreased	3	8.8	10.3	100.0
	Total	29	85.3	100.0	
Missing	99.00	5	14.7		
Total		34	100.0		

Table 4.26: Market Share 2018

Market Share in 2018					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased	24	70.6	75.0	75.0
	Constant	6	17.6	18.8	93.8
	Decreased	2	5.9	6.3	100.0
	Total	32	94.1	100.0	
Missing	99.00	2	5.9		
Total		34	100.0		

The market share of SMEs had been increasing steadily. This was due to the influence ICTs had on business operations. Easy and cost-effective advertising meant that business could reach out to more clients, local and in other regions of the nation through adverts placed on social media platforms, electronic billboards and network-based advertising through mobile text messages. Increase in productivity resulted in product diversification which grew the market base with a wider target for the products and services launched. This led to more business opportunities locally and regionally, breaking the distance barrier. Figure 4.11 and 4.12 shows the information.

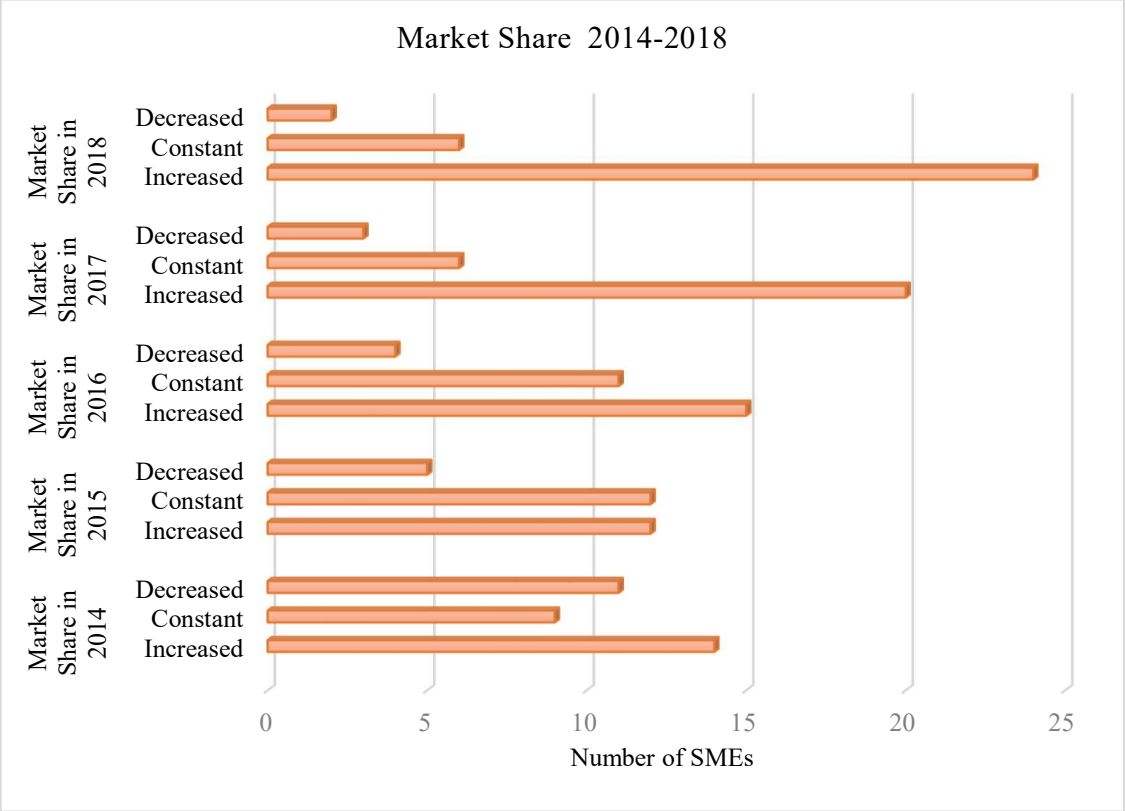

Figure 4.11: Market Share 2014-2018

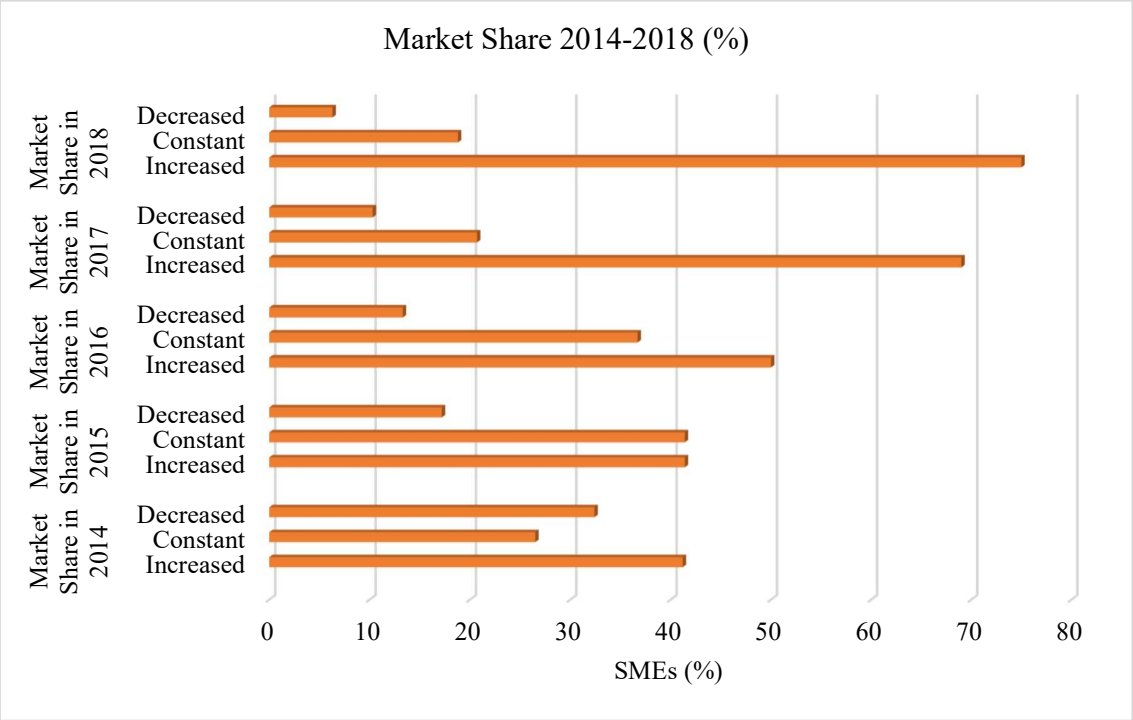

Figure 4.12: Market Share 2014-2018 (%)

4.2.1.18 Employee Numbers

The following Tables 4.27, 4.28, 4.29, 4.30 and 4.31 shows the trends in employees:

Table 4.27: Employee Numbers 2014

Full-time Employees in 2014					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased	7	20.6	26.9	26.9
	Constant	16	47.1	61.5	88.5
	Decreased	3	8.8	11.5	100.0
	Total	26	76.5	100.0	
Missing	99.00	8	23.5		
Total		34	100.0		

Table 4.28: Employee Numbers 2015

Full-time Employees in 2015					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased	6	17.6	23.1	23.1
	Constant	18	52.9	69.2	92.3
	Decreased	2	5.9	7.7	100.0
	Total	26	76.5	100.0	
Missing	99.00	8	23.5		
Total		34	100.0		

Table 4.29: Employee Numbers 2016

Full time Employees in 2016					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased	13	38.2	43.3	43.3
	Constant	12	35.3	40.0	83.3
	Decreased	5	14.7	16.7	100.0
	Total	30	88.2	100.0	
Missing	99.00	4	11.8		
Total		34	100.0		

Table 4.30: Employee Numbers 2017

Full time Employees in 2017				
	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Increased	13	38.2	43.3	43.3
	Constant	15	44.1	50.0	93.3
	Decreased	2	5.9	6.7	100.0
	Total	30	88.2	100.0	
Missing	99.00	4	11.8		
Total		34	100.0		

Table 4.31: Employee Numbers 2018

Full-time Employees in 2018					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased	17	50.0	53.1	53.1
	Constant	12	35.3	37.5	90.6
	Decreased	3	8.8	9.4	100.0
	Total	32	94.1	100.0	
Missing	99.00	2	5.9		
Total		34	100.0		

From the study, a trend was observed from the increase in productivity to the increase in market share. The increase in market share meant more business opportunities to open up resulting in the need for more human resources to keep up with the business. From the chart, the growth of market share directly had an impact on the number of full-time employees that had to be working. Thereby verifying the relationship between the increase in investment in ICTs having a direct impact on the number of people that are employed in SMEs. Figure 4.13 shows the number of full-time employees from 2014-2018.

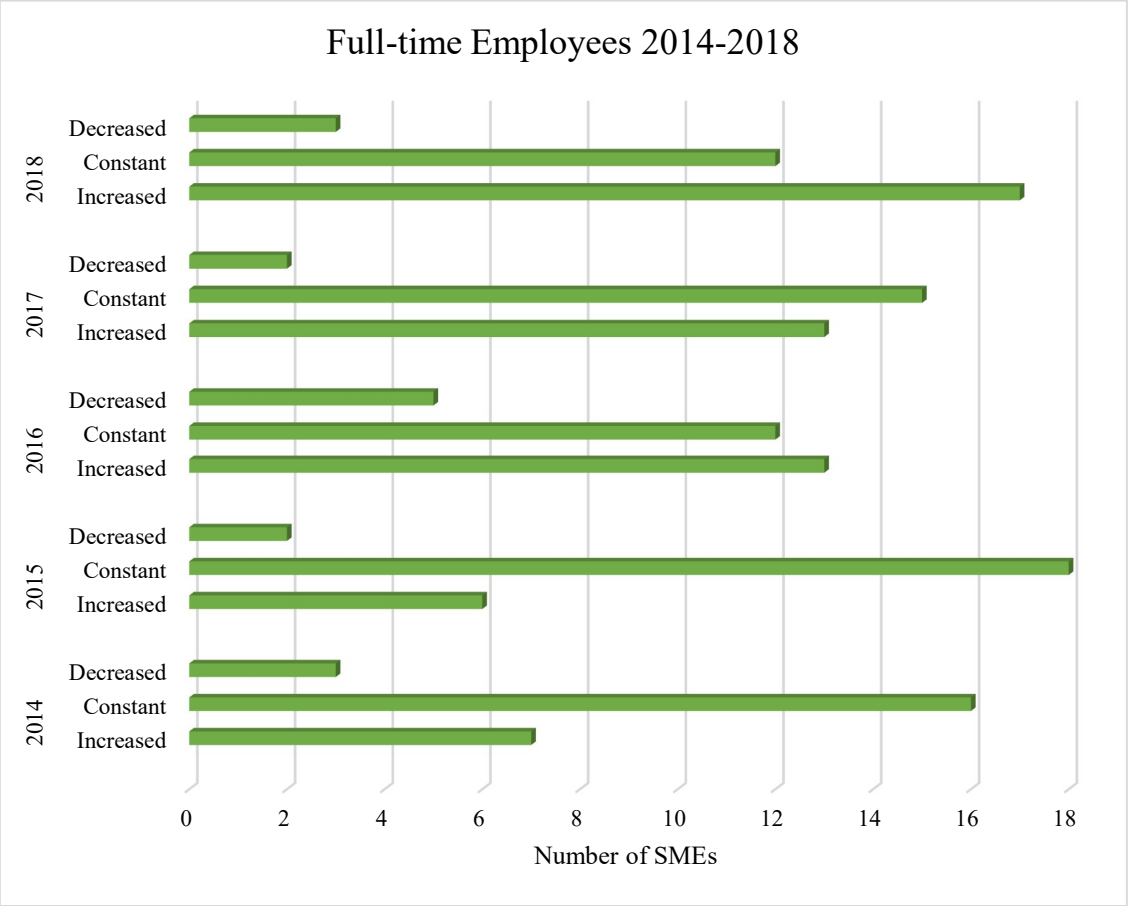

Figure 4.13: Full-time Employees 2014-2018

Figure 4.14 shows the percentage representation of the number of employees for the period 2014-2018 by SMEs.

Figure 4.14: Full-time Employees 2014-2018 (%)

4.2.2 Unregistered SMEs

Entrepreneurs that have their business running without formal registration were captured by the study with a total of 60 SMEs without formal registration were contacted and 46 SMEs managed to respond to the requested information providing for 76.6% of the total sample. Figure 4.15 represents the information:

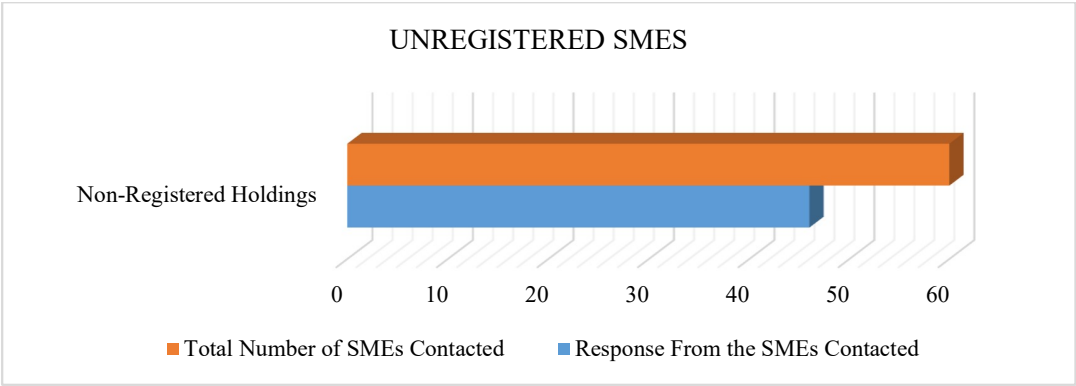

Figure 4.15: Unregistered SMEs Responses

4.2.2.1 SME Category

The Trading category had the largest representation in the study with 48.9% of the respondents. Services category 40% and the manufacturing with 11.1%. The Services accounted highest among the unregistered SMEs because of the way these businesses were built up without formal registration. Services such as brokering of products, crafts work, small scale farming and catering which do not require businesses to be formally set up constituted the most among these types of SMEs. Table 4.32 shows the details:

Table 4.32: SME Category

Nature of Industry					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manufacturing	5	10.9	11.1	11.1
	Trading	22	47.8	48.9	60.0
	Services	18	39.1	40.0	100.0
	Total	45	97.8	100.0	
Missing	99.00	1	2.2		
Total		46	100.0		

4.2.2.2 Age range

The age group of 33-40 years had the most frequency in the study representing 40% of the respondents while the age groups of 26-32 and 48-55 each had 17.8%. Others were 18-25 with 15.6% and 48-55 with 8.9%. Figure 4.16 shows the age distribution of the population sample.

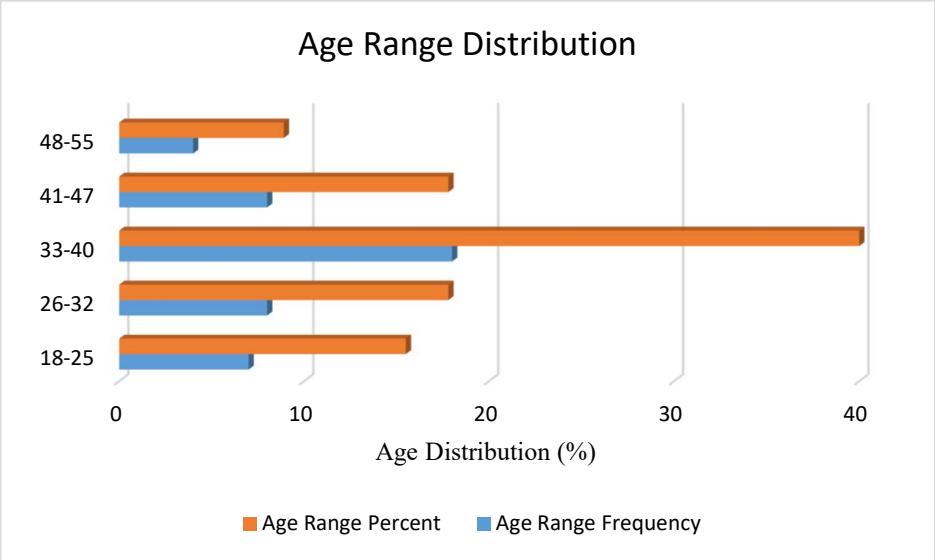

Figure 4.16: Age Distribution

4.2.2.3 Nationality

Zambians accounted for the whole population sample. It was however noted that due to the nature of their stay in Zambia, foreign nationals conducting businesses avoided answering the questionnaire fearing prosecution and deportation. Figure 4.17 shows the information.

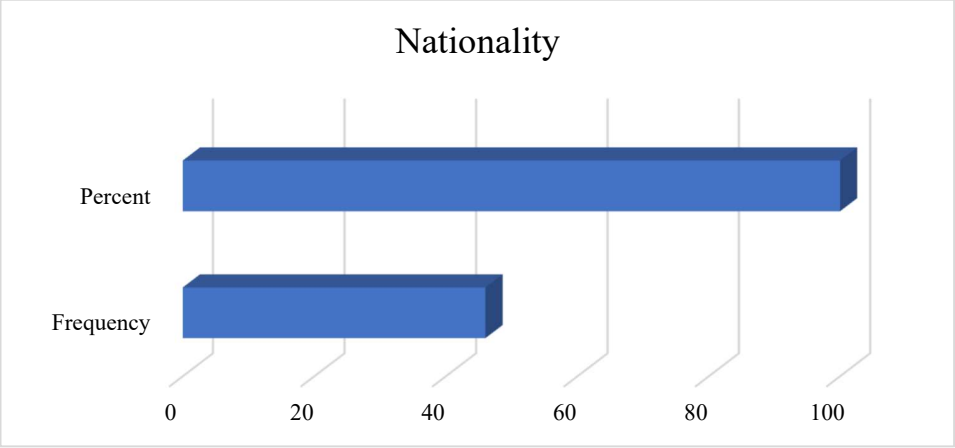

Figure 4.17: Nationality

4.2.2.4 Use of a bank account

The study revealed that 95.7% of the respondents have Bank accounts against a sample of 4.3% who did not. Table 4.33 shows the information.

Table 4.33: Business Bank Account

Bank Account for Business					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	44	95.7	95.7	95.7
	No	2	4.3	4.3	100.0
	Total	46	100.0	100.0	

4.2.2.5 Duration of operations

Most of the SMEs under study have been operational in the range of 1-3 years representing a major proportion of 41.9% and 32.6 % for those that have been operational for 4-6 years. The interpretation of this age distribution was that individuals decided on setting up businesses when they reached their late 20s and early 30s. Others were newly formed under 12 months represented by 14% and 10.9% for those over 6 years in operation. Table 4.34 shows the duration of operations.

Table 4.34: Duration of Operations

Duration of Operation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-12 months	6	13.0	14.0	14.0
	1-3 years	18	39.1	41.9	55.8
	4-5 years	14	30.4	32.6	88.4
	Over 6 years	5	10.9	11.6	100.0
	Total	43	93.5	100.0	
Missing	99.00	3	6.5		

Total	46	100.0		

4.2.2.6 Mobile Money

Almost 90% of the respondents declared that they used mobile money in their operations. This was mainly due to the difficulty in obtained a formal bank account as the documentation required for the businesses would not readily be provided. From the study, 88.6% of the respondents stated that they use mobile money for their transactions with 11.4% not using it. The chart below shows the use of mobile money among SMEs. Table 4.35 shows the use of mobile money by SMEs.

Table 4.35: Mobile Money Usage

Use Mobile Money					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	39	84.8	88.6	88.6
	No	5	10.9	11.4	100.0
	Total	44	95.7	100.0	
Missing	99.00	2	4.3		
Total		46	100.0		

The type of mobile money used was determined by the reliability, accessibility and ease of the platform. In this case, it was discovered that the Airtel platform was the mostly used by the SMEs with a representation of 52.3% of the respondents followed by Zoona with 27.3% and MTN Money with 18.2%. Shoprite Money, a service delivered by the chain supermarket store had a representation of 2.3%. Figure 4.18 shows the representation of the information.

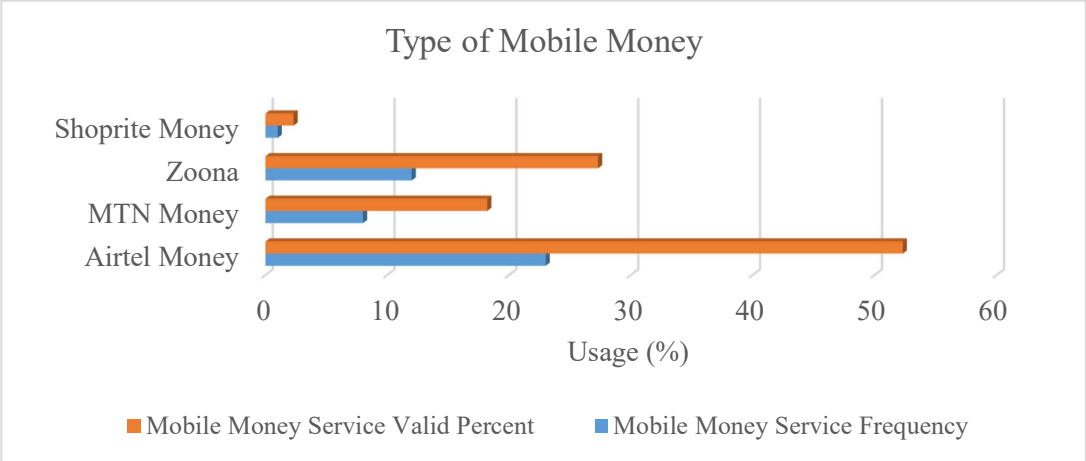

Figure 4.18: Type of Mobile Money

Figure 4.19 shows the reasons for using the different available mobile money services. The Ease, reliability and affordability of a platform made up the most for the reasons used.

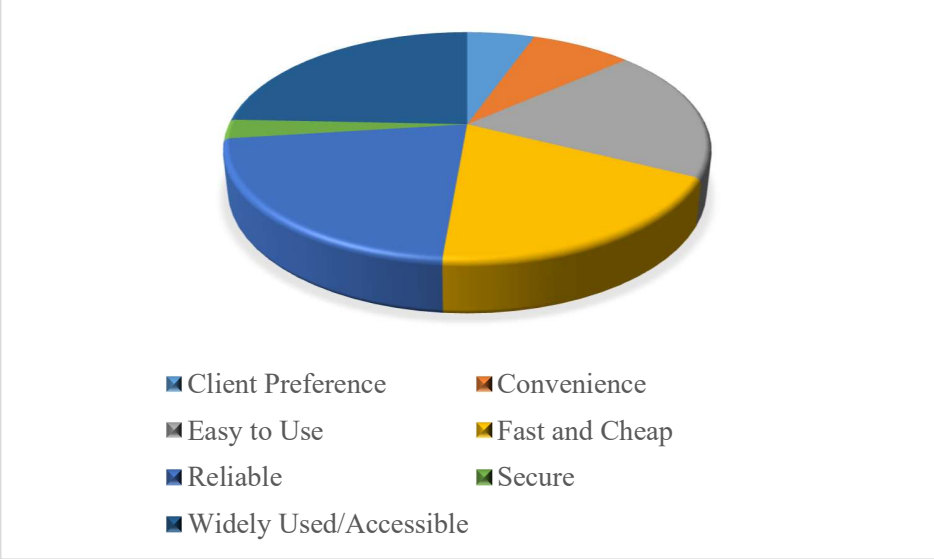

Figure 4.19: Reason for choice of Service Delivery

4.2.2.7 Preferred money transfer method

Mobile money transfer was specified as the most widely used to transfer money for businesses among SMEs. This was because of the documentation that bank operations require such as a company name and a Tax Payer Identification Number (T-PIN), which were not required in

opening a mobile money account. The cases which they used cheques and bank transfers, individuals used their personal details and not the business name when making payments and exchanging money. Figure 4.20 below shows the type of transfers.

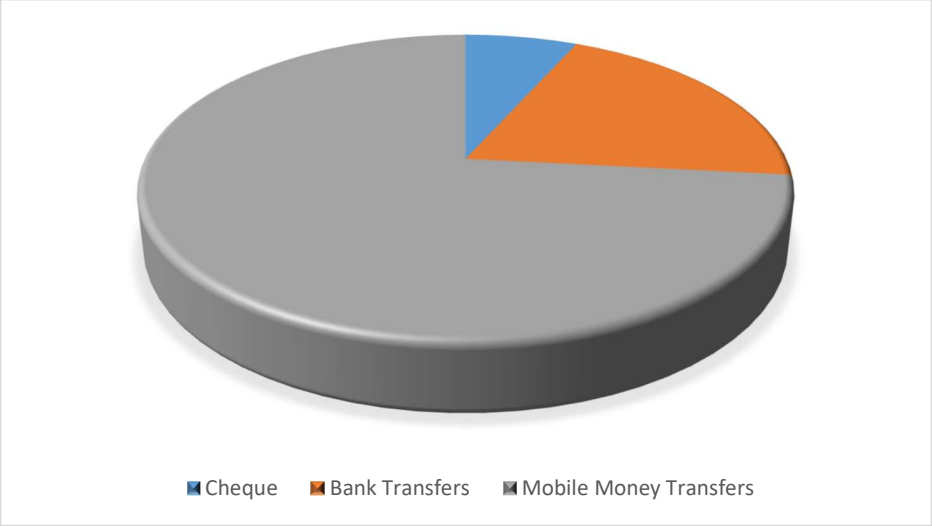

Figure 4.20: Type of Transfers

4.2.2.8 ICT use in SME

ICT usage among unregistered SMEs was found to be high and the reason for this was because of the cost saving measures which when implemented ICTs can have. Table 4.36 shows the impact of ICTs among SMEs.

Table 4.36: Impact of ICTs on Business

Impact of ICTs on Business					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	32	69.6	80.0	80.0
	No	8	17.4	20.0	100.0
	Total	40	87.0	100.0	

Missing	System	6	13.0		
Total		46	100.0		

4.2.2.9 Challenges Accessing ICTs for Business

The major barrier in accessing ICTs for businesses was found to be the high cost at which they come with. The equipment cost was singled out as the major cost together with the poor Internet connection which most SMEs faced. Figure 4.21 shows the challenges.

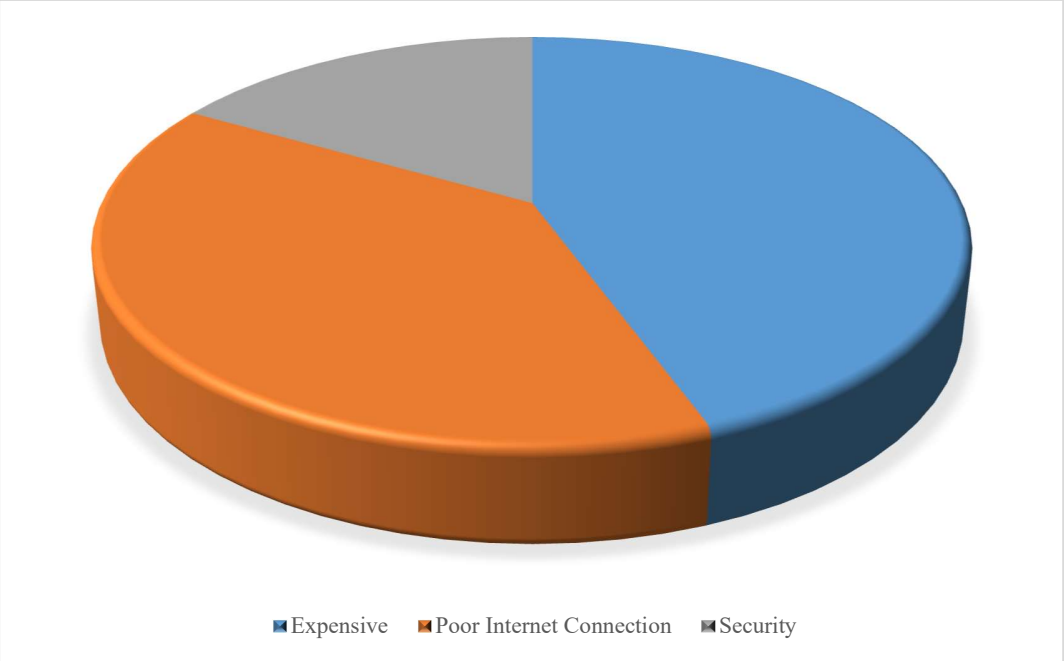

Figure 4.21: Challenges Faced

4.3 Chapter Summary

The chapter had the findings/results in which the actual collection, analysis and presentation of the data collected from the respondents from the questionnaire sent. The chapter used graphs, Tables and figures to represent the collected information from both the SMEs that were in formal operation and those that were in informal businesses.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Overview

This chapter discusses the findings of the research presented in Chapter Four. It addresses the research questions through the information that was collected by the use of questionnaires distributed to the SMEs under study.

5.2 Technological acceptance and support of ICT and trade amongst SMEs

Information and Communication Technologies (ICTs) were identified as catalysts for socio-economic development by promoting competitiveness as well as being enablers of good governance. However, there were several challenges regarding access to and utilisation of ICT in Zambia. ICT infrastructure, both public and private, was inadequate and fragmented, resulting in poor connectivity and communication. Present and previous Governments realised and admitted to the fact that the use of ICTs as a major economic driver as observed in the national development plans. This was because of the effect ICTs had on production and provision of services and with the quest to industrialize the economy through various interventions like value addition and diversification, Government had put in policies and procedures that would enable the use of ICTs to be maximized.

In this study, it was found that the policies and procedures that have been put in place have not been realised as there was little progression in implementing the laid down polices to support ICTs through the reduction of ICT costs. The biggest barrier to access to ICTs was found to be the cost at which ICT equipment comes with during the investment phase of organisations. The cost of ICT hardware and software was found to be high and start-up businesses were discovered to reduce the amount allocated to computer hardware and software because of the high cost. Unlike sectors such as agriculture which had farming tools and equipment that had tax relief in order to support the sector, the ICT sector remained with relatively high taxes that made the computer and telecommunication equipment expensive. With these stated, new taxes were planned through the use of Over-The-Top (OTT) Services like WhatsApp, which operated as an application on a smartphone enabling the use of the Internet for content exchange and distribution. The taxes on WhatsApp verified the lack of ambition to reduce the taxes on communication and equipment.

In terms of strategic business approaches to enhance the use of ICTs, plans like implementing the SMART Zambia program were developed to have an impact on improving the business operations of SMEs. Implementation would improve the flow of information within and among government institutions, enterprises and citizens to bring about social and economic benefits. This would transform the mode of delivery of public services from traditional face-to-face interaction to online channels to ensure that citizens and business entities could access services anywhere and anytime. (Government, 2017). This steadily was implemented through the use of E-Services using government agencies such as the Patent and Company Registration Agency (PACRA) and the Zambia Revenue Authority (ZRA) that enabled SMEs to perform services through the websites and payments. This reduced the time and efforts spent on queues and travelling to clear obligations. Other agencies like the Zambia National Data Centre (ZNDC) that provided cloud services to mostly government agencies opened up the provision of services to private individuals and SMEs. This meant that SMEs were able to setup domains and run websites locally to help in E-Commerce trade at competitive rates.

The study confirmed that the SMEs preferred conducting business on platforms that were readily available and accessible. Affordability was among the reasons, but client preference had a major impact. Complexity in terms of registration and usability are crucial among unregistered SMEs as issues like registering for Tax Payer Identification Number (T-PIN) pushed them to use mobile money transfers which did not require the use of it. For registered SMEs, the choice of platform was mainly to the reliability and security of the platform.

5.3 Drivers and barriers to the use of ICTs

5.3.1 ICT drivers

The ICT drivers were all those factors that enhanced and promoted the use among SMEs. From the population sample collected, each firm presented the benefits that encourage them to use ICTs. These were mainly dependent on the line of business they are in. The following are the compiled report of the responses:

1. Ability to conduct business in growing technological environment: Companies were evolving to match up to the trend as they setup computer networks with databases storing information in them for easy Information Exchange which made operations to be seamless. Client and business information was readily available for use regardless of the distance and

decisions are easily reached by having the information relating to businesses available. This was a major reason among the firms surveyed on as costs were reduced in the long term, businesses were run effectively, and transparency was encouraged by having more information flow. In this way, business decisions are made accurately with full information regarding the subject. Trends were also easily built to know the opportunities and threats to the businesses thereby having knowledge on areas that required more attention.

2. Advertising: Firms that were involved in selling or trading stated that they required to reach a good number for business to do well. Advertising was stated as the main mode for alerting the public and the target market about their products and services. Platforms like Facebook, Instagram and other social media platforms provide for cheap but effect mode of advertising especially in a country which has 36.7% of the population in the age group of 15-35 totalling to 4.8 million were in the active stage and were interactive on Social Media platforms (UNFPA, 2016). This made Social Media a good advertising platform for the targeted clients and customers and the costs associated in advertising were minimal compared to the tradition modes. It also had the advantage of reaching markets out the country of operation without complication.
3. Easy financial management, Monitoring and Stock Management: Software packages were available at low costs which could be used for Financial Management, Accounting, Monitoring and Management of Stock. This encouraged business growth and accountability as details and information exchange happened in real-time.
4. Cost saving: SMEs were able to save costs through the use of ICTs. Cloud computing was discovered as one of the key ways in which operational costs were saved. Products such as Office 365 for small business by Microsoft which allowed the usage of cloud services hosted for a subscription fee and free online drives improves collaboration without the need to own and maintain infrastructure to run the applications. These services were accessed any time and place with the use of an Internet connection.
5. Security: Businesses that handle excess cash at their premises cited the use of ICTs to aid security of their operations through the use of point of sale machines that provided customers with an option to swipe for their payments using bank credit or debit cards. This was a major driver to the use of ICTs by these type of SMEs as they did not require frequent visits to banks to make deposits and the security needed to escort them. Another use of

ICTs for security was the implementation of Closed-Circuit Television (CCTV) which used cameras connected to a network that were placed strategically and were able to provide live pictures of the area under surveillance whilst recording it. In this manner, business premises were able to be monitored all the times to avoid thefts and for accountability purposes.

Below the Representation Summary of the responses:

- Ability to conduct business in growing technological environment
- Access to business opportunities
- Accuracy, efficiency
- Cost saving by automation of processes and elimination of some requirements such as travelling, and time efficiency.
- Able to make data and reports available in real time for clients and fellow workmates
- Improved quality of output
- Easier methods of advertising, and reduced time of completing business transactions
- Easy access to business information, goods and services
- Able to match with global standards of quality
- Fosters business growth
- Easy financial management, monitoring and stock management
- Improved security for data and company operations
- Keeping up to date with current market trends

5.3.1CT barriers

ICT Barriers were all those factors that prevented the utilisation and acceptance of ICTs in this study among SMEs. The population sample covered in this study, a review of the major factors among the SMEs was done from the questionnaire that was used as a research tool. The following were the report findings:

1. Cost: Question aimed to identify what the key challenges that bar enterprises from using ICT was administered to the respondents. A representation of 38.5% indicated that the challenge they encountered was the cost implication of using ICT. They mentioned that acquiring, using and maintaining ICT was too expensive and as such not feasible for them.

Zambia mainly does not manufacture many ICT equipment and relied on importation from trading countries and partners. This meant that the equipment was taxed at 25% that is used for customs duty for finished imported goods (ZRA, 2018) and increased the end cost significantly.

2. Poor Internet Services: Network infrastructure was the other major barrier to access to ICT with 28% of the respondents citing the poor state of network and internet services in Zambia as a major challenge for using ICTs in their business. SMEs had difficulty with connection services out of the urban parts of Lusaka as speeds and coverage of Internet provision deteriorates.
3. Other noTable reasons found were security concerns such as data theft, hacking, cybercrime, and fraud among others. Erratic power supply and constant power cuts as a challenge especially that ICTs are mostly dependant on power to function. Power grids were not present in many locations and SMEs had to rely on other forms of energy in order to use certain ICT equipment. Others indicated the difficulty in accessing some equipment locally and that it had to be imported from outside the country.

5.4 Relationship between investment in ICT and growth of SMEs

Part of the objective of the study was to find if it is beneficial for SMEs to invest in ICTs and the following were the results based on the information supplied by respondents that was presented in Chapter Four of the study.

Determinants of ICT investment differed from one SME to the other but the main reason respondents gave which determines to invest in ICT or not was business growth. The major goal for a business run by an SME was continuation and after achievement then expansion. Increase in production was the major determinant in the investment of ICTs in firms as businesses required to increase capacity in the production of good or provision of services. From the sample population, 32% of the respondents stated that this was their main reason for investing in ICTs. Other major purposes for the investment in ICT were improving operations and customer demand represented by 23.5% each of the sample population. As SMEs diversify in products and new markets, the different outlets require communication among them and information sharing of the business. ICTs were able to link the physically separate entities allowing them to exchange information in a timely manner while reducing costs of transport and courier services. Customer demands were found to

be key in the decision to invest in ICTs as certain clients preferred trading methods that required the use of ICTs. This made SMEs to invest in ICTs to continue conducting businesses and acquire new customers.

SMEs were requested to provide their firms performance for the past five years starting with 2014 up to 2018. It was observed that businesses that had implemented ICTs in their businesses had increased levels of productivity during the years under study. This was because of the efficiency and effectiveness that the ICTs introduced in the operations allowing them to have surplus funds to invest in diversifying business and products. It is because of the effectiveness that the new product line and businesses encouraged firms to capture new markets for the products and services which meant that the market shares correspondingly increased. New markets and bigger market share led to more revenue's accumulation enabling the SMEs to acquire more human resources to handle the new productions and market. From this flow, a relationship was drawn, as the production increased, new markets opened up which provided for more formal employment leading to the conclusion that the investment in ICT was directly related to the growth of SMEs and growth in the businesses. Figure 5.1 shows the relationship between investing in ICTs and growth of SMEs.

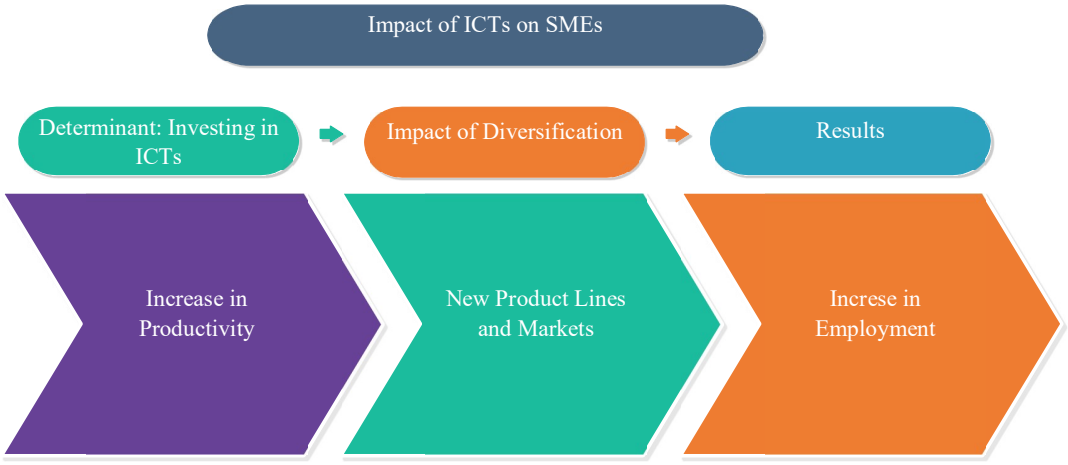

Figure 5.1: Relationship between Investing in ICT and the growth of SMEs

5.5 Chapter Summary

This chapter used the information from the previous chapter to discuss the results and findings seeking to answer each of the objectives of the study stated in chapter one. It discusses the technological acceptance of SMEs in their operations together with the policies that enable ICTs to be used effectively by SMEs. It also gives the drivers and barriers of ICT use and concludes by testing the last objective stated in chapter one which was the relationship between investing in ICT and growth of SMEs

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Overview

This chapter concludes on the research on the use of ICTs by SMEs in Zambia and makes the recommendations based on the findings from the various SMEs that were under study.

6.2 Conclusion

The use of Information Communication Technologies (ICTs) were found to be significant to the Small and Medium Enterprises (SMEs). The research showed how the investment in ICT increased the productivity of businesses and provided for having a competitive advantage in the market.

Mobile transactions were on the rise in Zambia with 82.4% of the SMEs under study stating that they use Mobile Money transfers in one way of the business or the other. This a prominent feature in African SMEs with the usage of Mobile Money in Africa on the rise and Sub-Saharan Africa having the highest number of Mobile Money Agents (Unit, 2016). The nature of transactions and maintenance make Mobile Money popular among SMEs. They were readily available with the process of withdrawing and depositing money not complicated even to those with minimum educational backgrounds. The use of Unstructured Supplementary Service Data (USSD) which used short codes in the presence of General System for Mobile communication (GSM) made them usable in areas with no Internet connection which had been cited as one of the barriers to the use of ICTs by SMEs. For the unregistered SMEs, Mobile Money was their prime source of financial transaction with a representation of 91.3% of the respondents verifying the use of Mobile Money transactions for their business. From this analysis, it could be concluded that Mobile Money use will continue to increase as more agents opening up as SMEs to provide Mobile Money services and supermarket stores opening up sections providing money transfer among its branches allowing the public to send and receive money using their stores.

Business ownership was dominated by the males compared to the females. With unregistered owners having male ownership represented by 69.6% of the respondents compared to 19.6% of female owned business. The other type of ownership was duo which was represented by 10.8% with both male and female ownership. This compared with the age rage of business owners showed

that males in the age group 27-30 years of age represented by 40% in the sample groups were more likely to setup businesses than the other age groups and the business to operate longer than those setup by female entrepreneurs. With business firms that were registered, the male ownership was represented by 55.9% of the business under study compared to only 2.9% of the firms owned by female entrepreneurs. Businesses owned by both male and female were represented by 41.2%. Male owned businesses showed that they reserve more amount for ICT budgets than the female or duo owned enterprises. Amounts up to K350,000 were budgeted for investment in ICTs with the view on improving productivity and operations in businesses. These were reserved as strategic plans to stay competitive in the market help in gaining market share in the category they were operating.

ICT investment was determined as beneficial to SMEs with the benefits not immediate but earned through the course of operations over years. The relationship determined that in the long term, the investment in ICT had a major role in the growth of the business and market share. The relationship determined is vital for new and upcoming SMEs because of the inclination they are used to of investing in undertakings that require immediate beneficial payment to the business as ICTs were strategic forcing them to plan.

The cost of equipment was determined as the major barrier to the acceptability and implementation of ICTs by SMEs thereby avoiding investing in them. Start-up businesses were found to be focussed in breaking-even or even creating a profit and investing in ICTs in sections like operations did provide immediate financial returns. This made them to delay the ICT investment to a point where the financial status can allow them.

The investment by Government through the Fibre cables to provide fast and reliable Internet connectivity in the country is mainly used by governmental bodies and departments which buys bandwidth (ZESCO, 2018). The effect on the ordinary SMEs is not effective as they depend on private network providers which are not satisfying their needs and does not benefit them. Efforts have been put in place by the Local Authority to have public Wireless Internet in the city in order to encourage the use of the Internet and to provide an equal competitive field for those doing business.

The use of ICTs had a positive response whenever it was introduced in a business. This was represented by 94.1% of the respondents who stated that after the introduction of ICTs in their

businesses, there was acceptance by the employees as it made their work easier and increased the efficiency. Of the respondents, 70% confirmed that there was moderate increase in customer satisfaction as they quality of products or services increased leading to strong businesses relationships and more customer loyalty.

6.3 Recommendations

The study gave an understanding on the use of ICTs by SMEs and this section will provide recommendations that should be taken in to consideration from the study. Furthermore, direction is to be provided on the gaps for the future studies on the subject. The following are the recommendations from the study:

1. Tax on ICT equipment should be reduced Tax on ICT equipment should be reduced to aid the development and accessibility of ICTs. Steps like those made in farming in which the Government through ZRA has imposed a 0% tax on agriculture equipment should be replicated to the ICT sector to reduce costs (ZRA, 2018). This will greatly benefit the SMEs as they will be able to invest in ICT including start-ups that prefer to delay investment due to the cost associated.
2. Business ownership was found to be dominated by male counterparts by large margins. The study recommends that entrepreneurship be introduced in to school curricula at different stages in order in inculcate the knowledge of business operations by owning. This will help equal knowledge opportunities for both male and female individuals.
3. The Government should implement policies that have been laid out to improve accessibility to ICTs and the Internet. Policies have been laid out and documented but what remains is the actualisation. Positive strides made such as providing Wireless Internet in public places are encouraging and the inclusion of ICTs in the strategic plan indicates the willingness of Government to improve their use.
4. In order to encourage ICT infrastructure development, Government should enter into Public Private Partnerships that will assist in distribution of coverage of communications. These will lower the amount of financial pressure on the Government and benefit the SME at the same time.

5. There must be a deliberate agenda to bring about awareness on how ICTs can be valuable to different societies especially those engaged in the business sector and their potential customers.
6. Introduction of taxes on communication media such as WhatsApp should be rescinded as this would increase the costs associated with ICTs (African, 2018). Instead Governments should aim at finding new ways in which communication can be made easier.

6.4 Recommendation for further research

Due to the wide nature of SMEs and their operations, only a section was captured for the study with respect to time and resources allocated. The following should be considered for future research on this subject:

1. A study to be conducted capturing SMEs practicing commercial farming on a large scale as farming is considered key in the diversification programme by Government.
2. The research was only confined to SMEs in the city of Lusaka. Future studies should explore and consider SMEs in other districts of the country and compare the results.
3. Further studies should incorporate the other aspects of SME business use apart from the ones discussed in this study.

6.6 Chapter Summary

This chapter concludes on the findings and results of the research. It provided for areas that are key to be focussed on in order to facilitate the adoption of ICTs by SMEs. It also gave the recommendations that should be adhered to and the opportunities for further research on the subject of study.

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APPENDICES

APPENDIX I: REGISTERED SME QUESTIONNAIRE

Questionnaire for SMEs and their application of ICTs: Registered SMEs

Section A: General Characteristics of the Firm (SME)

1. In what year did your firm begin trading?

   ……

2. Roughly how much is your budget on ICT expenditure per annum?

   K…….....

2b. Compared to 3 years ago would you say that your ICT budget is... (√) TICK

A lot lower now	
Slightly lower now	
About the same now	
Slightly higher now	
A lot higher now	
Don't Know	

3. How does your firm identify ICT needs?

   ……

   ……..……

   ……..

4. What type of ICTs are used by your business enterprise?

   ……

   ……..……

   ……..

5. Who owns the business enterprise? Please tick (√)

   - Male
   - Female

- Both Male and Female

6. Does your business encourage and train employees to learn and use ICTs in their course of operations? TICK (√)
   - Yes
   - No

7. If the answer in (6) is yes, what has been the general reaction from the employees?
   - Positive
   - Negative

8. What is your firm's estimated sales turnover per year? Please tick (√)

Estimated Sales Turnover	Tick (√)
Less than K200 million	
K200 million to K250 million	
K250 million to K400 million	

9. Does your company use any mobile money transactions?
   - Yes
   - No

   With regards to your answer, explain why the choice

   ……

   ……

   ……

   ……

10. What other ICT platforms does your company use in its Financial operations?

    ……

    ……

    ……

    ……

Section B: ICT Policy and Use

1. Does your enterprise have any policy on the level and use of ICTs in the firm? TICK (√)
   - ☐ Yes
   - ☐ No
2. IF answer to question 1 is YES, Specify what the policy entails

   ……

   ……

   ……

   …….
3. What determines the level of ICT investments?

   ……

   ……

   ……
4. How well acquainted is your firm on the importance and use of ICTs? TICK (√)

Advanced Users	
Average Users	
Learners	
Ignorant	

   For other responses, please explain briefly

   ……

   ……

   ……
5. Do you think ICTs guarantee the continuous development of the quality of products and services? TICK (√)
   - ☐ Yes
   - ☐ No

   Other response

   ……

   ……

……

6. What benefits do ICTs offer to SMEs?

……

……

……

7. What kind of progress has your firm made with regards the use of ICTs in its business operations? Explain

……

……

……

8. What do you understand by Electronic Commerce?

……

……

……

……

9. Do you think information technological changes have caused the growth of electronic commerce?

……

……

……

10. Does your firm use electronic commerce in its business operations? Please tick (√)

    - Yes
    - No

    If yes, explain how

……

……

……

11. After the ICTs have been procured, is evaluation of their benefit to the firm carried out? TICK (√)

    - Yes
    - No

12. If the answer in (10) is yes, which form of evaluation is done? TICK (√)

Revenue centred	
Work efficiency centred	
Customer satisfaction centred	
Market Share centred	

13. Do you think E-commerce is beneficial to the current needs of SMEs at the present time? Please tick (√)

	(√)	(√)	(√)	(√)	(√)
Strongly Agree					
Agree					
Neutral/ Neither Agree nor Disagree					
Disagree					
Strongly Disagree					

14. In terms of the following measures, what is the impact on your business today as a result of ICTs you have provided in the last five years? TICK (√)

	No Impact	Slight Impact	No difference	Moderate Impact	
Production					
Customer satisfaction					
Market share					
Employment					

15. Have there been any benefits for your firm resulting from using ICTs and E-Commerce? Please tick (√)

    □ Yes

    □ No

    If yes, specify below

    ……

    ……

    ……

16. Do you face challenges in using ICTs and E-commerce in your firm? Please tick (√)

    □ Yes

    □ No

    If yes, specify below

    ……

    ……

    ……

17. How do you overcome the challenges in question 16?

    ……

    ……

    ……

18. Based on the challenges identified in (15), in which areas can the government, donors and other stakeholders assist in reducing or eliminating challenges stated?

    ……

    ……

    ……

    ……

19. Has your organisation made strategic plans in centring its operations around the use of ICTs in the near future? Please tick (√)

    □ Yes

    □ No

    With regards to the answer given, kindly state why

    ……

……

……

……

Section C: Firm Performance

1. Over the past 5 years with the business firm using ICTs, indicate how the firm's productivity level has been. Please tick (√)

	2014	2015	2016	2017	2018
Increased					
Stayed the same					
Decreased					

2. Over the past 5 years with the business firm using ICTs, how has customer satisfaction and loyalty been? Please tick (√)

	2014	2015	2016	2017	2018
Increased					
Stayed the same					
Decreased					

3. Over the past 5 years with the business firm using ICTs, how has the business's market share performed? Please tick (√)

	2014	2015	2016	2017	2018
Increased					
Stayed the same					
Decreased					

4. Over the past 5 years with the business firm using ICTs, how has the number of full time employees been? Please tick (√)

	2014	2015	2016	2017	2018
Increased					
Stayed the same					
Decreased					

Name of Enterprise: …….

Position of respondent: ……

Contact: ……...

Email address: ……..……

APPENDIX II: UNREGISTERED SME QUESTIONNAIRE

Questionnaire for SMEs and their application of ICTs: Unregistered SMEs questionnaire

1. Who owns the business? Please tick (√)
   - □ Male
   - □ Female
   - □ Both male and female
2. What is your age range? Please tick (√)

18-25	
26-32	
33-40	
41- 47	
48-55	
56-63	
Above 64	

3. What is your nationality? Please tick (√)
   - □ Zambian
   - □ Foreign
4. What is your core business?

   ……

   ……
5. Do you have Bank Account for your business? Please tick (√)
   - □ Yes
   - □ No
6. If so, for how long has it been operational? Please tick (√)
   - □ 0-12 months
   - □ 1-3 years
   - □ 4-5 years
   - □ Over 6 years

7. Does the business benefit from having an account? Please tick (√)
   - □ Yes
   - □ No
8. Do you use mobile money services in your transactions? Please tick (√)
   - □ Yes
   - □ No
9. If yes, please state the service and possible reason for choosing it compared with the other services.

   ……

   ……

   ……
10. Which one is a more preferred method of money transfer and why? Please tick (√)
    - □ Cheque
    - □ Bank Transfers
    - □ Mobile Money Transfers

    Reason……..……..…..…

    ……

    ……
11. Do you use any Internet based platform to conduct your business? Please tick (√)
    - □ Yes
    - □ No

    7a. If yes kindly describe the platform.

    ……

    ……

    7b. If not, kindly provide a reason for not.

    ……

    ……
12. Has using ICTs helped in business growth? Please tick (√)
    - □ Yes
    - □ No

13. What benefits do ICTs offer to SMEs in your position?

……

……

14. Has business and productivity improved since engaging more in Information Communications Technology platforms? Please tick (√)

    - ☐ Yes
    - ☐ No

15. Does your business face any challenges in accessing Information Communications Technologies? Please tick (√)

    - ☐ Yes
    - ☐ No

    If yes, kindly describe these challenges:

    ……

    ……

    ……

16. How do you overcome these challenges mentioned in (15)?

    ……

    ……

    ……

17. What would encourage you to engage Information Communications Technologies (more) in your business functions?

    ……

    ……

    ……

    ……

    ……

    ……

18. In which areas do you need the assistance of government, donors and other stakeholders?

……
……
……
……

Name of Enterprise:

…….

Position of respondent:

……

Contact:

……...

Email address:

……..……