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Agribank	Agricultural Development Bank
CEO	Chief Executive Officer
CASE	Computer Aided Software Engineering
CRM	Customer Relationship Management
DSR	Design Science Research
DOI	Diffusion of Innovation
EFT	Electronic Funds Transfer
ERP	Enterprise Resource Planning
FC	Facilitating Conditions
GCE	General Certificate of Education
GDP	Gross Domestic Profit
GNP	Gross National Product
ICT	Information and Communication Technology
IS	Information Systems
ITU	International Telecommunication Union
ISP	Internet Service Providers
LANs	Local Area Networks
MICT	Ministry of Information Communication Technology

MSMED	Ministry of Small and Medium Enterprises Development
NSSA	National Social Security Authority
PSTN	Public Switched Telephone Network
POTRAZ	Postal and Telecommunications Authority of Zimbabwe
POSB	Post Office Savings Bank
SEDCO	Small Enterprise Development Corporation
SME	Small to Medium Enterprise
SMMEs	Small, Micro and Medium Enterprises
SI	Social Influence
TOE	The Technology, Organisation and Environment Model
UTAUT	Unified Theory of Acceptance and Use of Technology
WAN	Wide Area Network
ZIMASSET	Zimbabwe Agenda for Sustainable Socio-Economic Transformation
ZSE	Zimbabwe Stock Exchange
ZIMPREST	Zimbabwe Program for Economic and Social Transformation

CHAPTER ONE: INTRODUCTION

1.1 Background information

Abor and Quartey (2010), ascertain that Small to Medium Enterprises (SMEs) create more than 70% of new jobs in most world economies and are a key ingredient in Gross Domestic Profit (GDP) enhancement. The adoption of ICT in most SMEs across the globe revolutionised the business landscape and resulted in critical social and economic developments that saturated every aspect of human life (Shanker, 2008). The harnessing and use of ICT in SMEs globally had a huge impact on most economies and resulted in sustainable growth and prosperity which led most global governments to develop an interest in the development of SMEs (Ruvinga & Zhou, 2014).

Long-term sustainability and profitability of SMEs attributed to effective government policies, innovations and effective adoption of ICT in recent years (Chacko & Harris, 2011). Mutula and Van Brakel (2007), also add that the use of ICT tools in SME business operations will, in most instances, give them a competitive edge in any economy. Global SMEs that currently lead in organisational performance are those that operate in conducive business environments and have grasped the concept of intelligently applying ICT to facilitate market access, production, customer service and supply chain optimisation (Handzic, 2004).

SMEs in developing countries are still facing internal and external challenges in effectively applying ICT to enhance their business operations (Tsarwe, 2014). Torero and von Braun (2006), also point out some of the factors that are inhibiting ICT adoption in these SMEs. These include the lack of guidelines that outline effective adoption and application of sophisticated ICTs, poor organisational strategies, corruption as well as poor and unfriendly policies. Due to the aforementioned constraints, SMEs in most developing countries in recent years failed to mature and make relevant contributions to their economies (Chacko & Harris, 2011). These organisations have been unable to fully exploit the benefits of ICT (Torero & von Braun, 2014). Despite the diffusion of technology in developing countries, effective application of sophisticated ICTs in SMEs to a very large extent remains *terra incognita* (Rahman, 2001).

Kapurubandara (2009), also states that it is not guaranteed that all common forms of ICT tools and features are relevant to SMEs in developing countries, therefore appropriate adoption outlines/guidelines would need to be in place. Most SMEs in Zimbabwe still lack the means and knowledge of applying ICT effectively in their business operations, resulting in a lack of innovation, poor and inferior products and services and an insignificant contribution to the GDP (Confederation of Zimbabwe Industries, 2013).

The key driver of ICT adoption in most Zimbabwean SMEs relies on effectively implemented government policies and support (Tsarwe, 2014). National policies have the potential to negatively or positively impact ICT adoption in organisations as policymakers can coin policies that create an enabling environment that supports and encourages ICT use (Syed & Noor, 2009). The Zimbabwean government's initiatives and subsidies have not had the desired effect on ICT adoption in SMEs and have lacked the appropriate support that could have positively influenced the use of ICT in SMEs, hence the need for an effective guideline that supports implementation (Baro, 2011).

Robertson (2013), points out that it is critical for the Zimbabwean government to have an ICT adoption framework and approach that enforces and supports a predictable, consistent and competitive market. This research focuses on developing and validating an implementable ICT adoption framework for the Zimbabwean Government that will give a clear outline and roadmaps towards effective adoption and application of sophisticated ICTs in SMEs.

1.2 Problem statement

In the past decade, the Zimbabwean government crafted numerous policies. These include the 2014 Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET), aimed at rejuvenating the economy and ensuring growth in the SME sector (Chingwaru, 2014). The major drawback, however, has been the implementation of key aspects of the policy which include the availing of a funding facility for SMEs (Chingwaru, 2014). Mutseyakwa (2012), argues that the SME sector has not been able to adopt robust ICT tools that are relevant to their operations.

The government is uninformed on the reasons why SMEs are failing to effectively adopt ICT (Mutseyakwa, 2012). Information on the challenges that SMEs face in adopting ICT is critical and can facilitate policy implementation for the government. Despite failing to realise policy goals the government has since not initiated an investigation on the barriers to ICT adoption in SMEs (Chingwaru, 2014).

The 2007 SME policy framework that was hewn to build the capacity of SMEs through ICT integration is yet to be implemented (Maseko, 2014). In 2009, the government announced that it was removing import duty on all ICT related products. However, this has not yielded positive results for Zimbabwean SMEs, who still lag behind their international counterparts in terms of ICT adoption (Ruvinga & Zhou 2014). Stiakakis and Georgiadis (2011), also point out that simply possessing ICT equipment will not generate business value in terms of enhancing business processes, increasing competitive advantage and cost reduction.

Both the government and private sectors have made huge investments in the ICT sector, including a terrestrial optic fibre link in the Indian Ocean. However, the SME sector in Zimbabwe has failed to effectively access and utilise this infrastructure. This could be due to the absence of institutional mechanisms and a clear framework for ICT integration (Tsarwe, 2014). In 2005, the government coined the national ICT policy with the objective of promoting ICT use in SMEs. The policy lacked an implementation and adoption plan based on addressing ICT adoption barriers. Hence the policy has failed to meet its expected goals, revealing the need for an all-encompassing integrated ICT implementation framework for SMEs (Sanderson, 2014).

ICT adoption and integration in Zimbabwean SMEs continues to face severe setbacks that undermine all government efforts (Tsarwe, 2014). ICT adoption in most Zimbabwean SMEs is very haphazard and lacks a systematic methodology which relies on a tailored framework that is relevant and appeals to different SMEs. This lack of an appropriate and relevant adoption framework has for many years been hindering ICT adoption in most SMEs (Maseko, 2014).

Despite the upsurge of research on SME ICT adoption and use, no research has focused on developing a relevant and validated ICT adoption and implementation framework that the Zimbabwean government can use to address barriers to ICT adoption and consolidate its policies.

1.3 Research questions

1.3.1 Main research question

What would an ICT adoption framework for Zimbabwean SMEs look like?

1.3.2 Sub-research questions

a) What role should the Zimbabwean government play in SME ICT adoption?
b) What are the factors that limit ICT adoption in Zimbabwean SMEs?
c) What are the success factors that drive ICT adoption in Zimbabwean SMEs?
d) What is the operational impact of ICT adoption within Zimbabwean SMEs?
e) To what extent do Zimbabwean SMEs use and adopt sophisticated ICTs?

1.4 Research objectives

This research seeks to fulfil the following objectives:

- To design an implementable framework that will be utilised by the government to enhance ICT adoption in Zimbabwean SMEs.
- To recommend key strategies that the government can implement to support and improve ICT adoption in SMEs.
- To identify ICT adoption barriers in Zimbabwean SMEs.
- To validate the framework for ICT adoption in Zimbabwean SMEs.

1.5 Motivation and significance of the study

ICT tools and applications are currently revolutionising the way organisations are doing business and have become the most critical factor linked to gaining a competitive edge (Mutseyakwa, 2012). The importance of ICT in the attaining of SME goals in Zimbabwe cannot be overstated. Presently, there is an absence of a formal outline and guideline that the government, through the Ministry of ICT and SMEs, can use to enhance ICT adoption in Zimbabwean SMEs (Chimhangwa, 2012).

The failed implementation of policies by the Zimbabwean government and the absence of a guided outline has left most SMEs struggling to grow and survive and in

dire need of an operational boost through ICT integration. This highlights the detrimental need for an investigation that reveals the challenges that SMEs are facing in adopting ICT and a framework that helps the government to effectively support SMEs in ICT adoption (Nyoni, 2008).

This study will highlight a relevant, comprehensive and validated framework as well as benchmarking tools that the government of Zimbabwe will use to support ICT adoption efforts in SMEs. The framework will also address the ICT adoption challenges that the SMEs face by also including an accountability system and continuous improvement methods. The research will also result in the crafting of guidelines that the government will employ to equip SME owners to leverage on sophisticated ICT tools and features that facilitate staff training and development in order to close the tech-skills gap in most SMEs.

This research will ensure that the government is better positioned to implement ICT policies and initiatives within Zimbabwean SMEs. Relevant and suitable ICT tools that can be used by SMEs in developing countries will also be revealed in this research which will substantially aid the identification and adoption of ICT.

The analysis and findings of the study will add to the body of knowledge as it produces an evidenced-based account and reveals vital information on issues pertaining to ICT utilisation and use by Zimbabwean SMEs. Its findings will have a substantial effect on the Information Systems (IS), discipline as it seeks to equip the Ministries of ICT and SMEs and give them a deep understanding of ICT adoption in Zimbabwean SMEs.

The methodological contribution of this research will be linked to its utilisation of diverse data collection techniques (triangulation), in exploring matters relating to ICT adoption in Zimbabwean SMEs, and how it affects business performance.

1.6 Limitations

This research aims at providing a comprehensive analysis of the impact of ICT on SMEs however, it is likely to have a number of limitations due to a number of constraining factors. This research was only be limited to SMEs in and around the five main Zimbabwean cities of Harare, Bulawayo, Mutare, Masvingo and Gweru due to financial constraints. This study was also limited to formalised SMEs, thus they had to

be registered businesses. Due to the colossal levels of corruption and the lack of transparency currently facing most sectors in Zimbabwe, access to some government documentation on SMEs was also limited.

1.7 Chapter overview
Chapter One

This chapter discusses the background of this study and highlights the research motivation and significance. It introduces the problem statement and research objectives of investigating ICT adoption and use in Zimbabwean SMEs.

Chapter Two reviews the literature and presents the scope of the study. It highlights earlier studies done on ICT and SMEs and gives background theoretical information on ICT utilisation in various SMEs operations.

Chapter Three critically evaluates the research method that is used and discusses the sampling procedure and instruments used for data collection. Research assumptions, the research design and its suitability are also discussed here. A critical analysis of ICT usage and adoption data is discussed, including ethical factors associated with the methodology.

Chapter Four Outlines the research findings and how they relate to the literature. This chapter includes a themed thematic analysis that gives a comprehensive picture of ICT adoption in Zimbabwean SMEs. The chapter also contains in-depth background information on the sampled SMEs.

In **Chapter Five,** an overall summary of the research findings is introduced. The chapter reveals how research questions would have been answered and gives recommendations on ICT adoption and utilisation in Zimbabwean SMEs. This chapter

also features a tentatively proposed implementation framework that stimulates ICT use and adoption.

Chapter Six highlights the ICT adoption Framework validation process and methodology, including analysis of the data collected. This is where the proposed framework is tested.

In **Chapter Seven,** the research findings are summarised and a presentation of the study outcomes, including how the research questions have been realised, is outlined. Contributions made by the study are also discussed here which include practical, theoretical and methodological.

1.8 Conclusion

The first chapter covers an introduction to the research and has highlighted the objectives of the research topic. It has presented the research questions that will be answered during the course of the research. The literature reviewed as part of the background of the research revealed there is a paramount need for research on ICT adoption and its impact on Zimbabwean SMEs. The motivation and significance of the research was highlighted and pointed out the critical nature of the research's relevance to all stakeholders within the Zimbabwean SME sector. Finally, the overview of the research's structure was presented, giving a brief description of what is contained in each chapter. It is anticipated that the findings of this study will contribute towards the adoption and enhanced utilisation of ICT by Zimbabwean SMEs.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The performance of SMEs worldwide has led to a growing interest and recognition of this sector by many researchers who have gone on to widely investigate this area and these include Apulu (2012), Brown (2000), Abor and Quartey (2010), and Staley and Morse (2012). This chapter aims at presenting different trends that are found in literature and seeks to identify theoretical fundamentals for this study as it reveals significant findings from other scholars related to the field that is under consideration. These fundamentals will facilitate the identification of key constructs that will be part of the ICT adoption framework.

2.2 SME characteristics

The significance and role of SMEs in the development of any economy cannot be ignored and Zimbabwe is no exception. Aruwa and Gugong (2007), point out that a comprehensively accepted definition of an SME lacks because of the diversity of variables that are often used to define SMEs and because the idea of SMEs is dynamic and relative. Rahman (2001), argues that sales volumes, structure, age, location and size should be the key elements used in defining SMEs.

The definition of SMEs varies from one country to another and it is in most cases dependent on a combination of assets and employment. Kim and Gallent (2000), ascertain that the role that SMEs are expected to play in any economy is usually a key ingredient that many countries use in deriving the SME definition. However, despite the lack of a universal definition the most applied and extensively used in any case is one that primarily considers the turnover and number of employees within the SME (Mutula & van Brakel, 2007)

Hill (2001), gave an SME definition from an economic standpoint where he argued that an SME is an entity that: has an informal management structure; a small market share; is independent of any large enterprise and most often is wholly run by its owners. In most European countries, SMEs fall under 3 major categories namely micro (with a turnover of £2m and up to ten workers), small (£10m turnover and up to 50 workers),

and medium (turnover between £43m and £50m and up to 250 workers) (Arokiasamy & Ismail, 2009). In China, an SME is defined by having not more than 100 workers whereas in Thailand and Singapore, an SME has up to 200 employees (Djatikusumo, Talukder & Quazi, 2012). The Asian perspective of an SME also takes into consideration asset capital and volumes of sales (Djatikusumo *et al.*, 2012).

2.2.1 The nature of SMEs

The expression "nature" alludes to the fundamental attributes and characteristics of a man or thing (Djatikusumo *et al.*, 2012). Since the economies of nations contrast, it is hard to give a generally acknowledged meaning of an SME. Some critical attributes of SMEs however, can be distinguished. In developing nations, with a deficiency of capital and developing work surpluses, the following qualities of SMEs are observed (Cronje, Du Toit & Motlatla, 2010):

- SMEs are for the most part more labour intensive than bigger organisations;
- SMEs produce more straightforward, and perhaps at the same time more circuitous employment opportunities per unit of contributed capital. In the service sector the capital contributed per work opportunity is even less;
- SMEs are an instrument for using the talents, energy and entrepreneurship of people who can't achieve their maximum capacity in extensive organisations;
- Smaller organisations frequently thrive by rendering services to a small or limited market which bigger organisations don't find alluring;
- SMEs are a reproducing ground for entrepreneurial ability and a fertile ground for new ventures;
- SMEs make a significant contribution to the aggressiveness of the economy; and
- SMEs contribute towards social stability and cause less harm to the physical environment than large manufacturing plants, stimulate personal savings, increment success in rural regions and improve the populace's general level of economic involvement.

SMEs additionally offer adequate open doors for personal initiative, advancement and the improvement of products, services and systems. Due to the competition that SMEs induce, they fill in as a foundation of free markets. SMEs likewise assume an

imperative part in the social existence of the free-market framework as they enhance competition in the business environment. This competition takes out monopolies and supports unhindered trade which brings about quality services and products (Longenecker, Moore & Petty, 2012).

The SME is an accomplice to large organisations and offers services and products that regularly cannot be offered by large enterprises (Longenecker *et al.*, 2012). This they accomplish through uncommon niche markets and the niche may comprise of an extraordinarily specific product or service, or it might emphasise on serving a specific geographic zone. By finding an exceptional niche, an SME may evade extreme rivalry from large corporates. An SME gives a business owner a chance to enter the business world. In some cases, an SME is the main supplier of important services and products in meagrely populated and marginalised markets (Longenecker *et al.*, 2012).

In Zimbabwe, the Ministry of Small and Medium Enterprises categorises SMEs as micro, small and medium enterprises. The small enterprise is expected to employ not more than 20 people whilst the medium employs between 21 to 100 people (Tsarwe, 2014).

2.2.2 SMEs' impact on World Economy

Abor and Quartey (2010), ascertain that SMEs create more than 70% of new jobs in most world economies and have been a key ingredient in GDP enhancement. In today's economies, the expansion of the entrepreneurial base has been accounted to SMEs including the provision of a flexible adaptation to market change (Kuratko, 2005). The influence of SMEs in developed countries has positioned them as a significant and dominant force of economic growth and employment creation (Quaddus & Hofmeyer, 2007). They also highlight that the global SME sector growth has since surpassed the overall growth in the industrial sector due to the sector's low capital demand and employment potential.

According to Kongolo (2010), SMEs provide economic efficiency and facilitate the exploitation of idle resources which include raw materials, capital and labour, hence they also enhance the industry system efficiency. The emergence of SMEs also allows the discovery and development of entrepreneurs and future managers of industry (Quaddus & Hofmeyer, 2007). Manpower and wealth development within any country

is also attributed to SMEs as they make a considerable contribution towards capital savings (Kongolo, 2010). Any country's efforts towards self-reliance is often enhanced through SMEs, who in most cases grow to commanding heights in most global economies (Kuratko, 2005).

SMEs also play a critical social and economic role in developing countries through income generation and societal development which positively impacts the fight against poverty (Abor & Quartey, 2010). Olutunla and Obamuyi (2008), also point out that 98% of industry initiatives in most industrialised countries is accounted to the SME sector.

According to Kongolo (2010), SMEs have the potential to drive innovation and expand the tax base in any economy. He also adds that SMEs are the main channels through which entrepreneurs enhance the socio-economic landscape through fresh ideas, innovations and skills. The consensus is that SMEs hold the keys that will unlock and enhance socio-economic prosperity in global economies (Normah, 2007). The full potential of SMEs in most economies is yet to be realised, due to various cultural, institutional and governance factors (Normah, 2007).

In Asia, SMEs have been positioned as pillars of an impressively performing industry sector through focusing the attention of academic practitioners and policymakers on the prominence of SMEs in industrial development (Radaev, 2001). In Russia and Poland, SMEs have successfully exploited market niches that were no longer profitable for large-scale enterprises, which has facilitated a review of rural development and decentralisation policies (Radaev, 2001). The Malaysian SME sector has experienced massive growth in recent years with GDP contributions over 32% and it employs 57% of the population (Omar, Arokiasamy & Ismail, 2009). A survey conducted indicates that over 76% of SMEs in Malaysia have experienced a 10% revenue increase in recent years (Levy & Powel, 2015).

In India, 35% of manufacturing output is accounted to SMEs which includes exports of over 33% (Levy & Powel, 2015). Thailand and Vietnam have experienced an upsurge in the number of SMEs in 2012 and have created over a million jobs (Zindiye & Roberts-Lombard, 2012). Indonesian statistics confirm that the number of SMEs was edging towards 43 million by the end of 2003 with a GDP contribution of 56.7% (Radaev, 2004). China has just over 10 million SMEs which account for just under

99% of all enterprises in China (Levy & Powel, 2015). These SMEs are responsible for 60% of industrial output and 70% of the GDP.

SMEs in Europe are estimated to be just over 23 million, accounting for 93% of all businesses in the European Union and providing work for over a 100 million people (Zindiye & Roberts-Lombard, 2012). This has seen the increase in knowledge spilling over European borders and the subcontracting of SMEs by large enterprises as Europe continues to experience an upsurge in the globalisation of economic activities (Zindiye & Roberts-Lombard, 2012). In the Netherlands, SMEs make up 98% of the private sector and have a GDP contribution of 32% (Indarti, & Langenberg, 2008). In Italy, over 2.2 million people are employed in SMEs with an export contribution ranging over US$35 million dollars (Levy & Powel, 2015).

In most African countries, growth stimulation has been championed by SMEs and most governments have had to coin policies that facilitate their role (Ayanda & Laraba, 2011). SMEs in Africa have helped in addressing resource optimisation and rural-urban migration (Ahiawodzi & Adade, 2012). The contributions of SMEs in African economies include an improved inventory and resource system for large-scale enterprises and a source of innovation and the enhancement of the economic development structure (Oh, Cruickshank & Anderson, 2009). SMEs in Africa however, still face a number of political, social, economic, and technological challenges that hinder their full potential from being tapped (Zindiye & Roberts-Lombard, 2012).

2.3 SMEs in Zimbabwe

2.3.1 Generic components to the Zimbabwean SME definition

According to Zindiye and Roberts-Lombard (2012), the characteristics that encompass the Zimbabwean and global meaning of SMEs are comparable and generic in nature. These components are included in every one of the SME definitions. The basic components used in defining SMEs in Zimbabwe are the number of employees, assets, capital base and the registration status of the SME. The following is a discourse of the generic components of the definition of SMEs.

2.3.1.1 Employees

Employees which are frequently alluded to as human resources are a standout amongst the most imperative assets of a business organisation. The development of a business may be measured by using the number of workers. An increase in the number of employees might signify the development and improvement of a business element and it may likewise be a characteristic of the level of progress and how well the business is performing (Aruwa & Gugong, 2007).

An examination of both the Zimbabwean and the universal meanings of SMEs demonstrates that there is presently agreement in the matter of what constitutes an SME as far as the number of employees. The base number of employees is 50 for small enterprises and 100 for medium enterprises depending upon the business or industry sector. Small undertakings have in the vicinity of 1 and 20 employees and this to a great extent relies upon the industry. However, the manufacturing sector in Zimbabwe often utilises the highest number of workers in both small and medium entities.

2.3.1.2 Capital base

A distinguished business opportunity requires resources, and capital is one of the fundamental assets that enhance the exploitation of an opportunity. Without capital, a business enterprise will not go far. The capital needs of Zimbabwean SMEs vary depending on the sector or industry. However, SMEs in Zimbabwe are classified under the US$800,000 base (Zindiye & Roberts-Lombard, 2012). What is of significance is that adequate capital must be made accessible, so that the SMEs will be fruitful and have the capacity to develop and innovate (Zindiye & Roberts-Lombard, 2012).

2.3.1.3 Assets

Assets are critical to the success and productivity of any business. Assets are often divided into two main segments; current assets and non-current assets. Non-current assets are comprised of buildings, machinery, goodwill, land, equipment and vehicles. Current assets include money in the company bank account, inventory and debtors. Non-current assets which are key to the production process are the elements utilised in the definition of SMEs. The day to day operating expenses of a firm requires current

assets. The asset base utilised for the definition varies across borders, however, it is critical for a firm to have a sufficient capital base for the purposes of production and for day to day operations (Zindiye & Roberts-Lombard, 2012).

2.3.1.4 Registration

In any global economy, there exist both informal and formal entities. The formal organisations are registered for the purposes of paying taxes whilst for the informal organisations are not registered and they don't normally pay taxes. Most governments, in computing their GDP and Gross National Product (GNP), concentrate on the formal and enlisted business associations (Tsarwe, 2014). There is by all accounts an agreement in both the Zimbabwean and the universal meanings of SMEs that an SME must be registered and be formal. This is basic as it empowers governments to survey the commitments of SMEs to the economy on the basis that they are appropriately registered (Tsarwe, 2014).

The main governing authority of SMEs in Zimbabwe is the Ministry of Small and Medium Enterprises Development (MSMED). The MSMED insists that for an organisation to be defined as an SME in Zimbabwe it should meet certain criteria that relate to legal structure, number of employees and asset base (Republic of Zimbabwe, 2002). The table below highlights the main classifications of SMEs in Zimbabwe which will also be adopted by this study.

SME CLASSIFICATION	CHARACTERISTIC
Micro	Up to 5 Employees
Small	Up to 20 Employees
Medium	Up to 100 Employees

Table 1 SME Classifications in Zimbabwe (Tsarwe, 2014).

SMEs in Zimbabwe are also defined as any organisation whose working capital is below US$800,000 and employs less than 100 people (Tsarwe, 2014). Most SMEs in Zimbabwe are not legally registered under the Companies or Factory and Works Act and hence these informal entities do not pay corporate tax and their revenues are not part of the country's economic statistics (Ministry of Industry and Trade, 2011).

The Zimbabwean Government, through the MSMED, plans to transform all SMEs into profitable business entities that will significantly enhance the country's GDP (Maseko, 2014). Currently, more than 80% of industrial enterprises in Zimbabwe are SMEs and policymakers are becoming aware of the significant role that SMEs can play in the turnaround of the economy (Tsarwe, 2014). With the prevailing shrinking job market and unemployment in the 90th percentile, SMEs can be key in championing poverty eradication and addressing the unequal wealth distribution within the country (Chidoko, Makuyana, Matungamire, & Bemani, 2011).

Maseko (2014), also points out that the low start-up costs and dynamic nature of SMEs perfectly positions them as critical agents of innovation and provides a huge incentive for aspiring entrepreneurs. With over 300,000 graduates being churned out of the country's colleges and universities, SMEs have been earmarked to ease the potential disastrous unemployment rate. However, only 28% of SMEs in Zimbabwe have more than one employee (Chidoko *et al.*, 2011).

Despite government gestures aimed at supporting SMEs in the form of reviewed indigenous and economic policies, SMEs in Zimbabwe continue to underperform and remain insignificant contributors to the economy (Mufudza, Jengeta & Hove, 2013). They also point out that the rate of survival for new SMEs in Zimbabwe is just under three years. The cocktail of government policies has had a negative impact on the current SME landscape and has left the survival of most of these organisations hanging in the balance (Mufudza *et al.*, 2013).

Today, Zimbabwean SMEs face a lot of barriers to progress in the form a hostile and corrupt business operating environment, poor ICT infrastructure, inferior managerial skills and restricted access to finance, amongst many others (Mambo, 2010). The Zimbabwean SME sector is one of the least funded in Africa, which has discouraged innovation and development (Tsarwe, 2014). It is evident that until these barriers to progress are addressed, SMEs in Zimbabwe will not make a mark on the economy and will lack the inspiration to compete globally (Tafirenyika, 2010).

According to Tafirenyika (2010), the government of Zimbabwe has not made efforts to appraise SME owners on appropriate and proper ways of running a business. Most SME owners are ignorant of some of the basic business issues such as financial

management, business ICT use, corporate governance and legal systems (Tsarwe, 2014).

The Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET, which was coined to rejuvenate the SME sector in 2014 is yet to yield any substantial results (Tsarwe, 2014). Contributions to the GDP by SMEs in Zimbabwe continue to plunge due to policy inconsistencies and corruption (Mambo, 2010). The current ICT policy is 10 years old and has failed to instil a significant change in attitude towards ICT adoption (Zindiye & Roberts-Lombard, 2012).

2.4 SMEs and the Zimbabwe operating environment

The economic condition in Zimbabwe has encountered significant swings throughout the years. The operating environment assumes a noteworthy part in both strategy planning and execution. Adonisi (2013), points out that the economy in Zimbabwe is highly reliant on information, driven by knowledge and is service-based. He contends that suitable alignment with these requirements entails organisations to be adaptable and versatile.

Change is the only constant in the business environment and is often caused by the uncertainty of parameter variations and adjustments (Koh & Simpson, 2015). This ever-changing operating environment in Zimbabwe poses critical challenges to most SMEs. Most SMEs are usually ill-equipped to respond to changes and to exploit the opportunities that present themselves.

The Zimbabwean economic environment is at present beset by quick change which impacts on both key planning and execution of strategies (Adonisi, 2013). The Zimbabwean business environment has been characterised by hyperinflation from 2000, to adjustment and modest development post-February 2009 (Adonisi, 2013). Business entrepreneurs view this condition as a threatening one that can't be controlled by the business person and is ceaselessly changing (Mboko & Smith-Hunter, 2015). In the event that these variables can't be controlled by the business person, the most fitting reaction is to address factors that are under the control of SME proprietors, which include strategy planning and execution (Mboko & Smith-Hunter, 2015).

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The formulation of strategies is made complex by a testing environment which business entrepreneurs have little control over. The inability to control environmental components is intensified by an obvious absence of an information infrastructure which is said to linger 20 years behind nearby economies in the SADC (Mboko & Smith-Hunter, 2015).

A large portion of the required information is basically not accessible to Zimbabwean SMEs and this makes strategy formulation extremely challenging and in turn, affects the implementation of ICT strategies. The formulation of strategy has become an intuitive process for Zimbabwean SMEs. This is aggravated by the shift of policies brought about by legislature and government entities, which has made the business environment uncertain (Mboko & Smith-Hunter, 2015).

O'Regan and Ghobadian (2011), express that SMEs have a tendency to be more defenceless against environmental factors contrasted to their bigger counterparts. Given these difficulties, there is a requirement in Zimbabwean SMEs for appropriate planning and viable ICT strategies with a specific end-goal to amplify productivity. Naicker and Saungweme (2014), recognise that the present business environment is described by more unpredictability and vulnerability than any other time in recent memory. Given this situation, diligent work, inventiveness and the capacity to search out circumstances will not be adequate to grow a business, not to mention survive. Naicker and Saungweme (2014), also point out that organisations need to concentrate on building up their ICT abilities to contend and adjust to the evolving environment.

The global economy involves ICT strategies, e-business and learning driven systems that could prompt more responsive and spry strategies to manage change and vulnerability. Koh and Simpson (2015), recognise such strategies as key upper-hands for SMEs in Zimbabwe.

2.5 Contribution of SMEs to the Zimbabwean Economy

In Zimbabwe, SMEs have played a focal part in the social and economic advancement of the nation. According to Mudavanhu, Bindura, Chigusiwa and Muchabaiwa (2011), SMEs are the drivers of economic empowerment and development in Zimbabwe in both the formal and informal sector. They are seen as the drivers of economic development due to their contribution to poverty alleviation, creation of employment,

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wealth, generation of income and strategic alliances with large corporates within the country (RBZ, 2014).

The Reserve Bank of Zimbabwe depicts SMEs as the key drivers of the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (RBZ, 2014). The development of the SME segment is likewise part of the strategic technique of accomplishing more extensive formative objectives which incorporate empowerment of women, employment creation and alleviation of poverty (Mudavanhu *et al.*, 2011). Naicker and Saungweme (2014), concur with the view that the SME sector is significant for the nation's more extensive strategic objectives which incorporate the alleviation of poverty, development of employment opportunities, and enhancing indigenous ownership of resources.

A discussion of various specific contributions of SMEs to the Zimbabwean economy follows.

2.5.1 Employment creation

The Zimbabwean economy has, throughout the years, experienced long stretches of financial decay characterised by organisation retrenchments and closures. This brought about the shrinkage of the formal employment sector (Naicker & Saungweme, 2014). Nyoni (2012), claims that speculation levels in the economy have not been adequate to create work for more than 300 000 yearly alumni from the nation's universities. The SME sector has turned into an essential wellspring of work and a source of vocation for many individuals (Zindiye & Roberts-Lombard, 2012).

The Zimbabwean formal work avenues are contracting and hence there is a need to turn to the SME sector as a solution for employment creation. As traditional sources of business are contracting, formal employment openings are becoming progressively restricted in Zimbabwe. As the essential employment-making area of the Zimbabwean economy, SMEs are currently employing a huge number of Zimbabweans, as they utilise the biggest number of individuals (Nyoni, 2012).

The 2012 FinScope SME study highlighted that the SME segment employs 2.9 million individuals in the nation (RBZ, 2014). The most striking disclosure is without a doubt the extent of the segment which has over 3 million owners. The existence of these

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opportunities of employment has resulted in considerable disposable income for most individuals in Zimbabwe and enhanced the local demand for services and goods (Nyoni, 2012).

2.5.2 Contribution to economic growth

According to Zindiye and Roberts-Lombard (2012), the World Bank's approach on SMEs is established on three contentions. Firstly, SMEs advance competitiveness and entrepreneurship that results in economic proficiency, productive growth and innovation. In addition, SMEs are for the most part more beneficial than large firms as a result of their capacity to have some expertise in niche markets. SMEs additionally have the preferred standpoint over large businesses regarding adaptability and capacity to dispatch new products and services effortlessly (Zindiye & Roberts-Lombard, 2012).

In the last decade, there has been expanding mindfulness by governments in developing nations on the critical role of SMEs and their value to the economy. The significance of the SMEs is perceived globally in terms of their contribution to economic enhancement and GDP development. In the case of Zimbabwe, the enhancement of the SME segment is viewed as vital for the accomplishment of more extensive development goals (Naicker & Saungweme, 2014).

SMEs have been distinguished as critical components of the economic recuperation process in Zimbabwe. The SME contribution to the development of the economic is prefaced on their capacity to lower income disparities, use indigenous inputs, create employment, produce intermediate goods, enhance national output, advance a balanced development and enhance government revenues (Naicker & Saungweme, 2014).

Zindiye and Roberts-Lombard (2012), contend that SMEs offer open doors for the enhancement of new products and services, innovation and promotion of a healthy rivalry within the business landscape. This rivalry dispenses monopoly by large enterprises enhancing a free market economy. The SME contribution to the country's GDP is assessed at 60% (RBZ, 2014). The 2012 FinScope SME Survey points out that the development in the SME sector has had an immediate bearing on the GDP because of an enhanced output, value addition and profits.

Gross Domestic Product is additionally influenced indirectly by SME development through enhanced innovation and profitability that upgrades macroeconomic versatility. The SME sector likewise benefits the economy through their inclination to enhance, low start-up capital prerequisites, adaptability and potential to grow quickly (Maseko, 2011). Nyoni (2012), ascertains that a more grounded SME sector in Zimbabwe can enhance the national economy's flexibility through expansion and widening economic activity, subsequently diminishing its weakness to intermittent stuns.

The adaptability and inventiveness of SMEs enables them to effortlessly adjust to the adjustments in the economic environment, market needs and production systems. Not only do SMEs deliver merchandise and services but In addition, offer products that are customised in size and quantity for the local market. Products emanating from the SME segment are generally less expensive and focused as a result of their market proximity, which keeps operating costs lower (Naicker & Saungweme, 2014).

The high dependence of small companies on local inputs, skills and production strategies enables the nation to decrease its forex payments and advance the use of local resources (RBZ, 2014). SMEs enhance the Zimbabwean economy through nurturing the entrepreneurial abilities in the general population of Zimbabwe. They prepare and invigorate the tremendous potential for business enterprise, wealth creation and augmenting the limit of the local economy (Maseko, 2011).

The World Bank (WB), and multilateral institutions have realised the potential of SMEs to the acceleration of economic growth and poverty alleviation and have provided targeted assistance to the sector (Zindiye & Roberts-Lombard, 2012). Koh and Simpson (2015), points out that the Zimbabwean government has distinguished SMEs as the main driver of national development and a vehicle for economic improvement since SMEs contribute over half of the GDP of the nation. This is the aftereffect of a large-scale economic emergency that has seen Zimbabwe encounter a decrease in fiscal development, 80% closure in industrial facilities, a 90% unemployment rate and a close to 95% decrease in forex reserves (Naicker & Saungweme, 2014).

This has prompted an expansion in informal trading, with every empty space in urban territories occupied by a fruit vendor, informal clothing market and carpentry or iron speciality workshop. Zimbabwean art products have found their way to top displays in

various global cities, all through the quick inventiveness of SMEs (Zindiye & Roberts-Lombard, 2012).

Nyoni (2012), points out that that the use of the nation's human resources and local products creates wealth and an economic framework that is self-sustaining with cutting-edge linkages among its distinctive parts.

The World Bank (WB), and multilateral foundations have realised the capability of SMEs in the enhancement of economic development and the mitigation of poverty and have given focused assistance to the sector. In the Zimbabwean setting, there is expanding mindfulness inside all sectors, that SMEs are likely to produce the imperative opportunities of employment, given the enhanced capital-intensity of creating employment (Zindiye & Roberts-Lombard, 2012).

The experience in Zimbabwe has demonstrated that SMEs are more adaptable and receptive to changes in the market. They require generally less capital, and along these lines can possibly produce noteworthy levels of economical work for skilled and semi-skilled work (Zindiye & Roberts-Lombard, 2012).

Among the potential advantages of SME advancements in Zimbabwe are (Nyoni, 2012):

- mobilising and empowering the tremendous potential for enterprise;
- facilitating a wide financial base and creation of wealth;
- increasing the country's riches through full use of all the nation's human asset capacities;
- developing a monetary structure that is self-managing with a high level of sectoral linkages; and
- increasing indigenous responsibility in the economy.

2.5.3 Poverty alleviation
SMEs have turned out to be progressively critical as a source of occupation for most Zimbabweans. The FinScope SME study report (2012), additionally highlights that Zimbabwean SMEs play a key part in the alleviation of poverty for the business owners and their workers. Through employment provision and opportunities in business,

SMEs furnish labourers and business visionaries with disposable income which enhances their way of life and mitigates poverty (Naicker & Saungweme, 2014).

2.6 Zimbabwean government support for SMEs

According to Nyoni (2012), the significant benefits of an SME are its potential for advancement, adaptability, low start-up costs, quick turnover and the appropriation of risk. SMEs provide an answer for the business issues confronting Zimbabwe today since most of the general population are employed in this sector. This is because of the way large organisations are shutting down and others are scaling back their operations. SMEs in any case, experience a number of challenges in financing, service capacities, bureaucracy, access to information, technical support, marketing and export facilities. These make it difficult for SMEs to build themselves up and contend in a free market (Nyoni, 2012).

Despite the significance of the SME sector, different obstructions to passage exist. These hindrances run from a threatening political environment, restricted access to finance and the lack of administration and entrepreneurial abilities (Nyoni, 2012). The Zimbabwean government's SME plan had measures to address these imperatives. It was perceived that albeit different activities that have been set up to help the SME division, there was a requirement for an incorporated lucid arrangement and technique for the advancement of the SME sector in Zimbabwe (Nyoni, 2012).

The government of Zimbabwe, through the Ministry of Industry and International Trade, and in conjunction with the Ministry of Youth Development, Gender and Employment Creation coined a Small, Micro and Medium Enterprises (SMMEs) policy document which was affirmed by Cabinet in July 2002. The document maps key foundation policies for the SME sector (Gogo, 2013).

This policy had the mandate to provide a mutual vision for all stakeholders in propelling the SME cause and empowering them to attain their maximum capacity. In a drive to fortify the SME sector, the Zimbabwean government also set up an SME bourse to advance the objective of recording SMEs on the Zimbabwe Stock Exchange (ZSE). An SME bourse is an optional stock trade which was meant for upgrading the SMEs' fiscal position and in addition, enhancing SME development (Gogo, 2013).

The fundamental goal of the SME policy was to produce feasible business, lessen poverty, invigorate financial development and create forex, accordingly adding to the monetary prosperity of all Zimbabweans. The policy likewise endeavoured to characterise how the Zimbabwean government, the private segment and different partners could energise and make an empowering domain for SMEs to develop, and upgrade the contribution of this division to national advancement.

The fundamental central purposes of the Zimbabwean government's SME policy were the following (Nyoni, 2012):

- ensure the coordination of various policies and projects at national level;
- provide a proper institutional component to encourage SME enhancement efforts;
- commit SME development over the long haul instead of reliance on quick-fix solutions;
- prioritise the effective allocation of constrained public resources;
- rationalise bolster support programs;
- co-ordinate methodologies for mobilisation of resources; and
- delegate activities, obligations and responsibility.

The above mentioned key policies which manage and influence the development and improvement of SMEs in Zimbabwe incorporate the formation of an empowering legitimate and political environment, promotion of investment, financial help, market advancement, institutional reform, infrastructure and technology support, business enterprise, development of management skills and partnerships and relationships.

The following is a discussion of the government of Zimbabwe's policy on SMEs.

2.6.1 The Government of Zimbabwe's policy on SMEs

The economic reform advent in 1991, brought about a critical change in the Zimbabwean government's state of mind towards the SME sector and the sector is progressively seen as an imperative engine for employment creation and fiscal development. Government support for the SME sector has been articulated in different policy reports, which include (Nyoni, 2012):

- Framework for Economic Reform

- The Zimbabwe Program for Economic and Social Transformation (ZIMPREST)
- The Economic Recovery Program.

Moreover, given the SME's high work to-capital proportions, the Industrial Policy Framework perceives that SMEs should be urged to spread and develop, keeping in mind the end goal of lessening unemployment. Different government support programs were set up for the SME sector. These projects are supported by various foundations, which include the Small Enterprise Development Corporation (SEDCO), Zimbabwe Development Bank, Credit Guarantee Company of Zimbabwe, Agricultural Development Bank (Agribank), and the Venture Capital Company of Zimbabwe.

Be that as it may, this help has been piecemeal and clumsy (Nyoni, 2012). Guided by the Zimbabwe Program of Economic and Social Transformation (ZIMPREST) report, Industry Policy Framework, Economic Recovery Program, investigations on the segment and discussions with partners, the Zimbabwean government's SME policy highlighted the following areas of concern (Nyoni, 2012):

- supportive legal and regulatory environment;
- advancement of investment;
- financial support;
- market promotion;
- institutional reform;
- infrastructure and technology support;
- information provision;
- management, entrepreneurship, and skills development;
- targeted support; and
- relationships and partnerships.

An individual discussion of these components follows below.

2.6.1.1 Enabling legal and regulatory environment

The unpredictability of the regulatory environment and the variety of bureaucratic necessities are a portion of the constraints SMEs confront in Zimbabwe. For instance, the process of registering a business, getting the vital licenses and the cost of compliance can be a noteworthy impediment for small-scale business people. These

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procedures can take a very long time to process. Key concerns of SME owners range from business planning, strategy implementation to tax prerequisites (Kapoor, Mugwara & Chidavaenzi, 2013).

In Zimbabwe, tax assessment favours largescale organisations over small ones in light of the fact that the reporting demands of taxation which are excessively frequent and exceedingly bureaucratic require considerable resources which include time and workforce (Ndlovu, 2013). While a regulatory system is fundamental for the operation of organisations, overregulation is an overall danger to the intensity of the business arena. Besides, complex rules can create an environment evasion, as forthcoming business visionaries will be hesitant to participate in business exercises because of stringent controls (Ndlovu, 2013).

In spite of the substantial progress that has been made amid the primary phase of deregulation in Zimbabwe which included the deregulation of the transport, agriculture and financial divisions, the deregulation motivation in the nation is as yet incomplete. The current deregulatory condition smothers the foundation of new entrepreneurial endeavours (Kapoor *et al.*, 2013).

The Zimbabwean government set up an interceding system which was meant to update laws and regulations and decrease the burden of doing business. SME owners in Zimbabwe have been pushing policymakers for years to put in place regulations that are pro-active and will reduce the imposing of disproportionate costs on businesses and the consumer. Legal tools and regulations are aimed at guaranteeing negligible regulatory work. The regulatory remedies that the government put in place concentrated on the following (Ndlovu, 2013):

- simplification of complex regulations;
- improved access to information; and
- centralising and streamlining procedures.

Ndlovu (2013), points out that for these solutions to be compelling in tending to the SME challenges in Zimbabwe, the government has put in place the following initiatives:

The Small Business Act. This would be a legitimate instrument for encouraging the development of the SME segment in Zimbabwe. This act would be utilised as a basis

for characterising SMEs and to encourage the provision of focused help for both individual business visionaries and associations inside the sector. The act will aim to make a viable system for offering motivating forces to SMEs and determines rewards and punishments for non-compliance. A review system to guarantee consistency by all services and government offices would be encompassed in the act.

Business Formation and Licensing Procedure. The authorities responsible for business creation have an obligation to disentangle, simplify and limit the processes for setting up new entrepreneurial endeavours. Local authorities would have to create straightforward methods that require less time and push to issue the pertinent permits and licences.

Reporting and Administrative Requirements. A key definitive objective of the Zimbabwean government has to be the limitation of reporting and administrative necessities for SMEs, for example, tax collection prerequisites.

2.6.1.2 Investment promotion

Investment promotion is basic to the improvement of SMEs. High loan fees and high inflation unfavourably influences the development and improvement of the SME sector in Zimbabwe. Incentives must be put in place to motivate SMEs at their start-up stage and at their development stage with the goal that they don't face challenges in attempting to build themselves up. A balance must be accomplished between taxing and promoting SMEs with the goal that they stay viable and accomplish their role of creating employment and enhancing standards (Kapoor *et al.*, 2013).

With a specific end goal to pull in foreign investors, the government of Zimbabwe has proposed, through its SME policy in 2002, the following procedures to invigorate the development and advancement of the SME area in the nation (Ndlovu, 2013):

Tax Relief. Under this initiative, the SME division in Zimbabwe would get a tax alleviation from the government. This infers that SMEs would have a lower Capital Gains Tax threshold. SMEs would also be given a grace period of five years on tax collection amid their start-up stage. This incentive on tax would be utilised as a transitional procedure to energize the graduation of SMEs from the informal to the formal segment and to enlarge the taxation base.

Rebates and Discounts. The policies also proposed rebates and discounts for SMEs.

2.6.1.3 Access to finance

The two foremost challenges at present affecting SMEs in Zimbabwe are constrained access to funds and the high cost of finance. The other constraint of SMEs is lack of security and a track record. The greater part of SMEs need equity to fund their endeavours and perpetually turn to borrowing from financial organisations to begin and extend their organisations (Nyoni, 2012).

With a specific end goal to decrease these financial constraints on SMEs, the Zimbabwean government proposed the following measures in their 2002 policy (Ndlovu, 2013):

- Credit finance – This included organisations that facilitate the feasibility of SMEs in acquiring unsecured finance at concessionary financing rates. The Zimbabwean government would present a decrease in the tax rate paid and simple access to forex for the reasons of obtaining imported inputs.
- Credit guarantees – This would be utilised as a choice to address accessibility to finance and collateral requirements for SMEs. The Zimbabwean government would play a key role in giving an assurance fund to SMEs.

2.6.1.4 Market penetration

Access to business sectors, both internal and external, remains a huge requirement confronting the SME sector. Numerous SMEs in Zimbabwe have failed to work effectively on the grounds that they don't have adequate information and insight on market openings and market patterns. The SME sector is likewise not effectively geared for trade and most business people discover the expenses and intricacies of exporting challenging (Kapoor *et al.*, 2013).

Export methodologies are complex since there is an extensive number of documentation associated with the procedure, making it excessively bureaucratic. Import obligation discounts under the Duty Drawback Framework also take too long to process. The Duty Drawback Framework is a plan that empowers exporters to initially get duty refunds paid on imported items utilised in the manufacturing of exports. The

delay in the handling of duty refunds denies SMEs the funds required for reinvestment purposes (Kapoor *et al.*, 2013).

In this way, these delays negatively affect SME development as they encounter finance related issues (Nyoni, 2012). To counter the previously mentioned market infiltration challenges being experienced by SMEs, the Zimbabwean government proposed the following initiatives in 2002 (Nyoni, 2012):

Market Intelligence. It is imperative that market trends information through industry studies and different strategies be consistently accessible to SMEs. The government proposed to supply research instruments that are specific to a sector to SMEs with the goal that they would improve their competitive advantage.

Business Linkages. Significant access to business sectors by SMEs would be increased through the advancement of subcontracting, diversifying, permitting, joint endeavours and different types of business linkages.

2.6.2 Challenges to policy implementation

The above policies and initiatives proposed to enhance the growth and sustainability of Zimbabwean SMEs have realised poor success despite the government's efforts to promote the SME sector and the invaluable contributions of SMEs to Zimbabwe's economic development (Nyoni, 2012). This, according to Kapoor *et al.* (2013), is mainly due to a plethora of issues that have beset the development of SMEs in Zimbabwe.

The key challenges that have seen the implementation failure of these initiatives are corruption within key government rankings, lack of decisive leadership, the lack of infrastructural facilities, continued constrained access to credit by SMEs and most importantly the abuse of the various initiative by senior government officials and the beneficiaries themselves, resulting in the insincerity of purpose (Ndlovu, 2013).

Ndlovu (2013), points out that the bulk of government policies and programmes since independence in 1980 have failed to uphold the mandate of effectively promoting the development of SMEs.

According to Naicker and Saungweme (2014), huge amounts of money obtained from various institutions for the purpose of implementing these policies and programmes have been diverted and spent elsewhere, which has also resulted in these initiatives yielding poor results. The funds that are meant to execute the policies mentioned above hardly ever reach the desired SMEs as they may be diverted, due to bureaucratic bottlenecks and will end up in the accounts of senior officials more than half the time (Naicker & Saungweme, 2014).

According to Ndlovu (2013), the government has focused mainly on formulating these programmes and initiatives over the years and has neglected the implementation process. In most cases, implementation is left to officials who were not part of the formulation process and do not have a clue as to what the key driving elements are.

Often there is a lack of buy-in by most of the stakeholders in the various structures and hence these initiatives fail (Ndlovu, 2013). Finally, Naicker and Saungweme (2014), also point out that most of these programmes and policies have performed poorly because the government has failed to inform SMEs on how to apply and take advantage of these initiatives. Information dissemination on these policies is very poor, especially for SMEs at grassroots level who would need these initiatives to be clearly spelt out and outlined in a simple manner that allows them to engage (Naicker & Saungweme, 2014).

2.7 Information and Communication Technology (ICT)

Modimogale and Kroeze (2011), define ICT as the range of digital technologies built for the purpose of collecting, organising, storing, processing and communicating information within and outside organisations. Sahlfeld (2013), also adds that ICT refers to technologies that relate to the science of information processing and transmitting. ICT includes elements such as the simple telephone, point-of-sale machines, desktops, e-commerce, notepads and software (Modimogale & Kroeze, 2011).

Milne and Watkins-Mathys (2010), define ICT as technology that improves the storage, collection, distribution and utilisation of information. They classified ICT into telecommunications, information and networking tools. Ongori (2009), points out that most of the tools that people use today to communicate, transmit information, process information and store information are classified under ICT. Apulu and Ige (2011),

agree that the term ICT today is utilised mainly to point to technologies that capture, transmit and process information.

Bayo-Moriones, Billón and LeraLópez (2013), also add that technology tools today include servers, laptops, iPads, cell phones, proprietary and non-proprietary software, wired or wireless intranet and security systems. ICT is any technology that is utilised to support information-storage, processing, collection and circulation (Apulu & Ige, 2011). More precisely, Milne and Watkins-Mathys (2010) allude to ICTs as all forms of technologies that range from hardware, telecommunications and information management methods, software, applications and devices utilised for the creation, production, analysis, processing, packaging, distribution, retrieval, storage and transition of information.

According to Mokaya (2012), ICT tools play a critical role for organisations of various sizes where tools like the internet, laptops, servers, cell phones and software are utilised for the purposes of enhancing performance and gaining a competitive edge. Ongori and Migiro (2011), point that the world is currently at the dawn of the new industrial revolution where there is a transition to new systems that powerfully combine biological, digital and physical technologies.

Ongori and Migiro (2011), also add that this new digital revolution has its basis on the constructs of the second industrial revolution, which included systems for mass communication, electricity and contemporary manufacturing. On the other hand, the structures that point to the fourth digital industrial revolution are based on constructs such as global links that are versatile, enhanced digital communications, affordable processing and high-density storage of data as well as an upsurge in the connectivity of active users of digital technologies.

According to Alaghbandrad, Nobakth, Hosseinalipour, and Asnaashari (2014), one of the critical characteristics of the new ICT and digital era is how it is driven by a constant array of innovations. ICT today is enhancing the strength of traditional research tools and digital technology is allowing for low-cost types of digital innovation through recombination, that allows for less effort on research and development. The various types of these new ICT innovations include the digitisation of most organisational products and business models, the emergence of online platforms, distributed manufacturing, crowdsourcing technologies and advertising-based free services.

According to Mokaya (2012), ICT is a meta-infrastructure and a growing sector that enhances global economic development and is a critical contributor of sustainable development. He also adds that the Internet has recently emerged as a critical component of the ICT meta-infrastructure that has transformed the day-to-day lives of almost every being on earth, as it provides instant connectivity to almost every part of the globe. The internet, according to Mokaya (2012), has revolutionised the transmission of information in various formats and languages over infrastructure that includes wireless networks, fibre optic cables, and satellites.

ICT has become extremely versatile as it now permeates the lives of almost every being on earth in various activities which include the transaction of trillions of dollars, analysis of weather forecasts, business intelligence activities, epidemic control, climate change, adaptation advancements and the creation of new businesses (Alaghbandrad *et al.*, 2014).

ICT today also includes broadband-enabled technologies which include intelligent transport systems, smart grids, integrated water management systems and government systems that facilitate trade, financial, civil and transportation systems. Most ICT emerging infrastructures in global economies today are constructed and based on broadband networks that enhance the transportation of goods, people, money and services across various nations and hence act as a key construct of the emerging digital economy (Alaghbandrad *et al.*, 2014).

According to Mokaya (2012), technology also includes the device mesh which has moved beyond the traditional mobile devices and desktop computer to include the full range of endpoints that people utilise today for interaction. These include virtual reality components which are also classified under wearables and augmented reality.

According to Drigas, Koukianakis, and Papagerasimou (2011), the phenomenon of ICT has grown to cover a wide expanse of various elements, which include hardware, communication networks and enterprise-level software. They go on to classify ICT tools under a business and economic perspective. The economic perspective points to ICT as a social construction; provider of information while the business perspective views ICT as a channel for communication and product promotion.

ICT tools can also be viewed as either asynchronous or synchronous (Drigas *et al.*, 2011). The synchronous tools allow concurrent real-time communication between

different locations and these include various video conferencing tools. On the other hand, asynchronous tools allow for communication during different times from different places and include emails and podcasts.

Drigas *et al.* (2011), also point out other ICT tools for communication, including presentation tools, spreadsheets and data maintenance tools. They add that social media has emerged as a critical platform where various ICTs are being utilised by individuals and organisations to reach out to a wider audience. According to Kiveu and Ofafa (2013), ICT tools that are frequently used on a day-to-day basis include cell phones, televisions, iPads, notepads and computers.

The most commonly used ICT tool is the cell phone which has become a critical tool for most individuals today in terms of desirability, accessibility and affordability (Kiveu & Ofafa, 2013). Kiveu and Ofafa (2013), points out that cell phones offer a wide variety of ICT functionalities, which include product promotion, communication, various transactions and different social Internet supported services.

According to Laudon and Laudon (2010), ICT is the convergence of different hardware and software elements which include software, communication devices, network and hardware, various applications and different forms of data. The main focus of ICT is to enhance capability and innovation ability (Laudon & Laudon, 2010). ICT has been viewed as an infrastructure, a provider of information, a business system and process and also a social construction in recent years. From a marketing perspective, ICTs are considered to be marketing channels, applications, techniques and tools for marketing and promotional mediums (Alaghbandrad *et al.*, 2014).

Kiveu and Ofafa (2013), refer to ICT as tools that facilitate world value changes and knowledge dissemination in society and have a radical effect on business operations and how people view the world. Drigas *et al.* (2011), view ICT as the complete control and management of information investment in an organisation, including the ability to standardise, secure, share and control organisational data. Dyerson, Harindranath, and Barnes (2009) proposed the following list as the most commonly adopted technological tools utilised by SME:

- email;
- company website;
- extranet;

- computer network;

- Internet;

- wireless access; and

- intranet.

This study also applies Mutula and Van Brakel's (2007) definition, which identifies ICT as a combination of any device and software application that facilitates the collection, organisation, processing, utilisation, distribution and presentation of information in any business entity for the purposes of enhancing its operations. In most countries, ICT is viewed as the main ingredient for economic growth and remains the epicentre and key strategic element of any industrial transformation in the developed world (Kabanda, 2014).

2.7.1 ICT and SME business processes

According to Sin Tan, Choy Chong, Lin and Cyril Eze (2010), ICT adoption enhances the innovativeness of SMEs and enables the provision of unique products and services. The use of ICTs in SMEs enhances market contributions and reinforces the internal business operations reinforcement. It is therefore critical for SME owners/managers to be comprehensively equipped regarding the potential benefits of ICT. According to Koçak (2011), the adoption of ICT enables flexibility and reliability within the business functions of an organisation. He also adds that ICT enhances productivity and provides SMEs with the opportunity to reach new markets and customers that are beyond their geographical reach.

ICT in SMEs can significantly affect market-oriented products and services, processes of manufacturing, management and work practices. ICT has also the ability to enhance uncertainty levels in organisations and put pressure on the SME's knowledge and skill base (Koçak, 2011). In sub-Saharan Africa, ICT is considered as the perfect monetary advancement vehicle (Koçak, 2011; Kyem, 2012). Kyem (2012), additionally points out that technology transfer to African SMEs presents conflicting attributes between the rationale of conveying technology adoption and the systems that direct the appropriation and use of technology.

The use of ICT at strategic, operational and key organisation levels encourages effective correspondence and information trade. Aspects that include enhanced customer relations, teamwork, services visibility, market share increase and enhanced competitive advantage come as a result of ICT utilisation. Moreover, embracing ICT in SMEs equips management with reasonable projections on costs related to training, networks and security, hardware, consultation, hardware installation and configuration (Alaghbandrad *et al.*, 2014).

According to Kyem (2012), putting a value to ICT adoption and the corresponding ability of technology to disseminate information is critical. He goes on to add that defining objectives for ICT implementation is key in light of the fact that this decreases reliance on foreign entities in Africa. The economic stance in Sub Saharan Africa may gain fully from embracing ICT through implicitly and genuinely devoting endeavours for creating gainful and ingenious utilisation of technology, and proactively taking part in the development of ICT.

Uwalomwa and Ranti (2009), points out that ICT reception and use in SMEs correlates with statements of income. Uwalomwa and Ranti (2009), point out that SMEs that utilise email for client correspondence often grow 3.4% quicker in sales, contrasted with other SMEs without email correspondence. They also add that profitability is often a consequence of ICT's capacity to extend and reach worldwide markets. The main effect of ICT on productivity is accompanied by cost savings.

In the African setting, the use of ICT in SMEs is still a fairly new phenomenon when contrasted to developed nations that include the United Kingdom and the United States of America, where ICT has extensively progressed (Kyem, 2012). ICT fills in as the fundamental tool for communication in business combined with fixed and mobile line utilisation. The utilisation of these tools allows SMEs to communicate and meet the information-processing requirements of their customers, suppliers and organisation members (Apulu & Ige, 2011).

The employment of ICT extensively modifies the way that an SME functions in this globalisation era (Ongori, 2009). The various enhancements and changes that are often introduced in SMEs through ICT include organisation restructuring, enhanced competition and business function transformation. Additionally, Ongori (2009), points out that ICT allows SMEs to stay relevant and dynamically respond to today's ever-

changing global markets. He adds that SMEs need a constant connection to today's digital marketplace.

The impact of ICT on SME business operations is often grouped into four key elements which include growth, performance, expansion and new products (Consoli, 2012). ICT enhances an SME's competitiveness and allows for enhanced mechanisms for accessing unique information services and new markets (Apulu & Latham, 2011). The exchange of information is constantly occurring within organisations and the feedback that SMEs receive from clients allows SME owners and managers to quickly respond to changes that impact demands (Apulu & Latham, 2011). ICT utilisation by an SME allows the organisation to engage in e-commerce. In turn, e-commerce enhances day-to-day business operation efficiency and hence sustains business growth through enhanced information flow and the penetration of new markets (Ongori & Migiro, 2010).

SMEs in global economies are harnessing the power of ICT to enhance their competitive edge (Müller-Falcke, 2001). Innovations in ICT are enabling SMEs to boost their revenues, business processes and to ensure cost reduction through reduced marketing costs, increased sales and enhanced partner collaborations and communication with clients (Rohrbeck, 2010).

According to Consoli (2012), the three main ICT adoption innovators for SMEs' are organisational readiness, external pressure and perceived benefits. The industry sector and characteristic of the firm can also be critical ingredients towards ICT use in SMEs (Alaghbandrad *et al.*, 2014). Konde (2007), claims that effective ICT use in SMEs can contribute towards huge savings in transactional costs, export economies of scale, time and improved production, which positively impact marketing efforts and information sharing within the SME.

ICT use in global SMEs has also enhanced managerial and entrepreneurial skills through access and utilisation of online learning portals available through various networks (Konde, 2007). ICT adoption in SMEs has enhanced their influence in global economies and has enabled innovations which have inspired new products and services and has facilitated foreign market access (Kyem, 2012). Barriers that previously existed in different SME functions, such as finance, marketing, customer

service and production have been eliminated through the use of ICT integrated systems like ERPs (Kyem, 2012).

Information silos that have existed in most global SMEs have become a thing of the past through the exploitation of ICT in information storage, processing and distribution (Rohrbeck, 2010). ICT can enhance collaboration in SMEs through the facilitation of continuous discussions and interactions with suppliers and clients through collaborative tools such as social media, mobile apps and the cloud (Manochehri, Al-Esmail & Ashrafi, 2012).

Consoli (2012), analysed ICT use in SMEs in both developed and developing countries and identified 4 main impact groups.
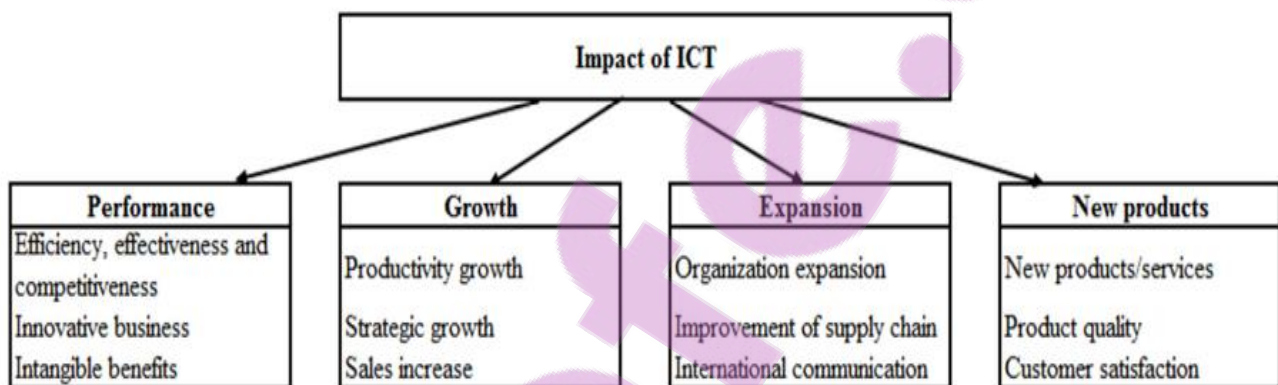
Figure 1 Impact of ICT in the private sector (Consoli, 2012)

Rohrbeck (2010), also points out the pervasive nature of ICT and how SMEs can leverage on that to increase productivity. However, despite the high return potential of ICT by SMEs, it often leads to market integration and exposure to competition which could erode profits (Rohrbeck, 2010).

SMEs in Europe have harnessed the commercialisation power of the Internet in influencing brand positioning and promotion in recent years (Biedenbach & Marell, 2009). Mutambanengwe (2010), ascertains that synergies in media have worked to SMEs advantage as this has opened an opportunity for brand promotion and also resulted in reduced advertising costs. In developing countries, however, the use of internet-based applications in SMEs is still lagging behind due to a deficiency in skill and guidance (Mutambanengwe, 2010)

ICT also plays a key role in enhancing supply chain management efforts in SMEs. It is used to improve integration, collaboration and coordination with suppliers, service providers as well as other partners of SMEs (Adekunle & Tella, 2013). The integration of ICT in the supply chain saves time, money and enhances business processes (Adekunle & Tella, 2013). This has also increased market transactions and the speed at which information flows in the market (Adekunle & Tella, 2013).

In recent years, ICT has become a critical pillar in SME business processes and has opened up opportunities for competitive growth and expansion in global markets. (Mutambanengwe, 2010). ICT has facilitated SME innovation efforts in most countries and has ensured quality information systems and decision support systems (UNDP, 2013). The adoption of ICT has seen SMEs enjoy reduced transaction costs, enhanced information gathering and analysis as well as capability development for managers (Adekunle & Tella, 2013). SMEs that have effectively adopted ICT have realised the benefits of revised business models, outsourced business processes and market configurations resulting in enhanced competitive advantages (UNDP, 2013).

According to Mutambanengwe (2010), the effective adoption and utilisation of ICT will enhance the strategic advantage of organisations and provide numerous benefits that can positively influence their competitive edge. Organisations that adopt ICT early are more likely to obtain substantial competitive advantage (Adekunle & Tella, 2013).

In an attempt to categorise ICT innovations, Rohrbeck (2010), pointed out three types that facilitate the comprehension of the phenomenon. The first type includes process innovations that enhance the effectiveness and efficiency of business processes. These include ICT functions such as object-oriented technologies, Computer Aided Software Engineering (CASE), systems programming and data administration.

The second type includes functions that enhance the administrative procedures of organisations that include payroll systems, decision support systems and accounting systems. The third type comprises innovations such as embedded ICT systems in the core technology of organisations with the strategic significance of enhancing competitive advantage.

Examples of innovations in the third category include electronic data interchange systems and e-commerce systems that are often embedded in the organisation's

critical business processes and will extend the core business services and products or the organisation (Rohrbeck, 2010).

Cloud computing has also emerged in recent years as a critical business tool that is revolutionising the business landscape. The review of various studies on cloud computing reveals that cloud computing can be categorised into three classes. The categorisation is based on the application and integration of cloud computing in the different service-oriented ICT resources in an organisation's core business technology (Alaghbandrad *et al.*, 2014).

According to Alaghbandrad *et al.* (2014), the application of cloud computing will often result in wide scope changes in an organisation's ICT management, business operations and strategic use of ICT. Cloud computing aggregates ICT features such as service-oriented architecture, grid computing and virtualisation into modern business computing environments. The aggregation occurs as a response to the enhanced need for flexibility, integration and agility. These hypothetical points of view support innovation features relating to cloud computing and underscore its key part of business esteem creation in organisations. Along these lines, it is helpful to examine the hierarchical reception of distributed computing from mechanical advancement dissemination viewpoints (Alaghbandrad *et al.*, 2014).

According to Alkalbani, Rezgui, Vorakulpipat and Wilson (2013), adoption is an information diffusion process that often culminates in the selection of a rational choice of a new technology. ICT in the SME sector is comprised of goods that include software and communication equipment and also services that include telecommunication and display, which are adopted to enhance effectiveness and productivity in the sector.

Over the last decade, ICT has been gaining acceptance and is being implemented as a tool that enhances process efficiency and global productivity in SMEs (Alkalbani *et al.,* 2013). Some of the commonly adopted ICT in global organisations are discussed below.

- Enterprise Resource Planning (ERP), which is defined by O'Brien (2005), as an integrated cross-functional system that reengineers logistics, finance, distribution manufacturing, finance, human resources and critical organisational processes to enhance agility, efficiency and profitability.

- The Internet has emerged as one of the most integral ICT tools that is being utilised in various organisations today. According to 'Brien (2005), the internet is a form of a digital web that comprises a global information system logically connected through a system of unique address that relies on the internet protocol (IP). The Internet has its origins in the 1960s when the US Department of Defence, Advanced Research Projects Administration (ARPA), created the ARPAnet to facilitate the connection between higher learning institutions and high-tech defence contractors. As of December 2016, the internet penetration in Zimbabwe was set at 50.1% a major improvement from the 39.8% recorded in December 2012 (Naicker & Saungweme, 2014).

- Computer Hardware is any electronic device which is mainly comprised of hardware and software. According to Modimogale and Kroeze (2011), a computer hardware mainly refers to the physical components of a computer. In most cases, a personal computer is comprised of a system unit and various accessories often referred to as peripherals. These peripherals include the keyboard, mouse, monitors, printers and speakers

- The Fixed Phone is one key technological element that cannot be ignored despite it being overshadowed by the cellular phone in recent decades. Mutambanengwe (2010), standardised the various definitions and adopted a single definition. According to the International Telecommunication Union (ITU), (2010), the fixed telephone line is an active line that connects a subscriber's terminal equipment to the public switched telephone network (PSTN). Zimbabwe has, however, seen an acute reduction in fixed telephone subscribers over the years.

- The cellular phone is one of the most influential technological tools of the 21st century that has revolutionised the way of life in organisations and households.

According to Modimogale and Kroeze (2011), there are three ways of categorising ICT for SMEs and these three include production-integration, market-oriented groups, and general-user. The classification is dependent on the ICT roles in SMEs and the strategic role that ICT plays. The general user group includes the simple and basic ICT utilisation which mainly includes e-mail and the internet.

2.7.1.1 General ICT user group

The general user ICT group is often independent of the organisation size and often not coordinated. The group also includes stand-alone ICT tools like desktops that can be utilised for processes like the keeping of records and financial planning. This user group does not often bring much competitive advantage to an organisation (Modimogale & Kroeze, 2011).

2.7.1.2 Production-integration ICT group

The production-integrating ICT group (according to Modimogale and Kroeze, 2011), is more progressive than the general-user ICT group. The production-integration group relates more to the production processes of the organisation which are more costly and require more advanced technological skills to carry them out. According to Nguyen (2009), the production-integration group is a critical element in the enhancing of a business' operations and the realisation of the strategic objectives of an organisation.

Ritchie and Brindley (2005), point out a number of ICTs that are part of this group which include Local Area Networks (LANs), electronic funds transfer (EFT), and wide area network (WAN). According to BayoMoriones, Billón and Lera-López (2013), the key benefit that this group often brings to an organisation is enhanced and faster service delivery. ICT networks often have the capacity of enhancing how information is shared within the SMEs.

2.7.1.3 Market-oriented ICT group

The market-oriented ICT group is the third group proposed by Modimogale and Kroeze (2011), which they explained as being key in how the organisation communicates and markets its products to the outside world. The ICT tools outlined in this group are key in representing the organisation's online presence and the presentation of the organisation's services and products online.

The online presence of an organisation might have both an e-commerce function and a marketing function. Most global organisations today are utilising the internet to access markets in various geographical locations. The internet also gives the organisation the ability to trade 24 hours a day due to the borderless market space.

This often gives small organisations equal grounding to compete with much larger organisations (BayoMoriones *et al.*, 2013).

It is critical for SMEs to have all the three categories represented in their organisations as this ensures effective utilisation on ICT. The hybrid application of ICT group categorises serves as a competitive drive for the SME and will often revolutionise the organisation's business processes.

2.7.2 ICT innovation adoption stages

Research on ICT adoption has revealed temporal stages in the innovation process (Wolfe, 1994). According to Wolfe (1994), the classification of organisational ICT adoption into separate stages can be categorised according to the nature of each stage. In spite of the fact that there are varieties in the naming of stages between researchers, as a rule, most analysts concur that the procedure of ICT adoption can be isolated into two noteworthy stages namely initiation and implementation (Rogers, 2003).

2.7.2.1 The initiation-implementation stages

The initiation stage includes all the activities and events that lead up to the adoption decision and include activities that relate to the gathering of data, problem awareness, attitude, estimation and the attainment of resources. The implementation stage includes all activities that relate to the application and utilisation of ICT (Cooper & Zmud, 1990).

Researchers often concentrate on only one of the stages due to the challenge of gathering longitudinal data and the long periods incurred during the initiation and implementation process. The decision to adopt ICT occurs in the initiation phase. This is where the organisation collects the fundamental information on the innovation, enhance their knowledge and conducts an in-depth analysis of the relevance and appropriateness of the adoption to the organisation (BayoMoriones *et al.*, 2013).

Since most substantial firms have embraced numerous ICT advancements, most research in the past decade has mainly explored the implementation and post-execution stage (Lippert & Forman, 2005). However, recently the attention of most

software vendors has turned to SMEs hence there is a growing need for research that relates to the initiation and preadoption stages (Ramdani, 2013).

The ability, capacity and motivational differences that are found in each SME ensures a variation in the way that they adopt and implement ICT. SMEs are a central piece of the business environment mostly because it is much easier for them to incorporate and apply ICT advancements in comparison to large enterprises. All things considered, very few SMEs have sufficient internal ICT capacity, including the fundamental staff and satisfactory specialised learning for effective adoption (Bharati & Chaudhury, 2015).

2.7.2.2 The ICT adoption ladder

The ICT adoption ladder ensures a variation in the adoption levels of ICT for most SMEs. Hence most studies outlined the principle of an SME adoption ladder (Zappalà & Gray, 2006; Bharati & Chaudhury, 2015). The adoption ladder often highlights a widely applied technology-push framework that depicts business enhancement and ICT adoption in incremental steps driven by ICT acceptance, the benefits of business and organisational transformation (Mpofu & WatkinsMathys, 2011). Below are the key 6 ICT adoption ladder steps as outlined by Cooper and Zmud (1990).
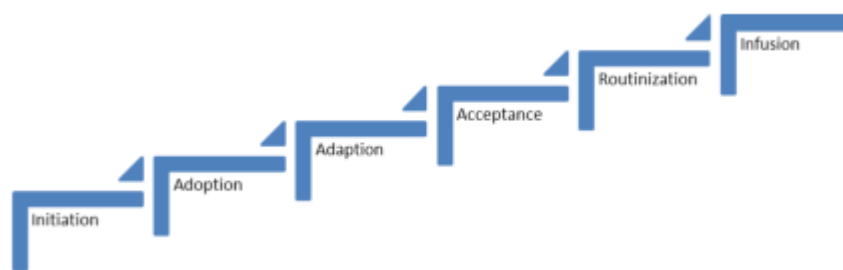
Figure 2 ICT adoption ladder (Cooper & Zmud, 1990)

- The initiation step is where the SME is either actively or passively searching for ICT opportunities;
- the adoption step is when negotiations to back the implementation of ICT occur;
- The adaptation step is when the SME begins to apply ICT and revise its processes;
- the acceptance step occurs when the utilisation of ICT begins to be encouraged within the SME;

- The routinisation step occurs when the utilisation of ICT is standardised within the SME; and
- lastly, the infusion step is when the utilisation of ICT results in enhanced efficiency within the SME.

One of the impediments with this clarification is that it portrays a moderately complex process in a linear way. Zappalà and Gray (2006), contend that in spite of the fact that the adoption ladder gives a feeling of mechanical movement, it is excessively linear, making it impossible to depict forms that are frequently non-linear and extremely complex nor does it help in seeing how ICT changes what SMEs can do or the resource implications of effective adoption. According to Zappalà and Gray (2006), it is critical for ICT adoption frameworks for SMEs to take into consideration the organisational and external social contexts. They proposed a 6 staged model that is outlined below.

Adoption and use of ICT within SMEs		
Individual/ personal	Organisational	Business environmental
Pre-stage. Uninvolved: Indifferent, hostile		
Cultural/life style concerns	Lack of resources, unemployed; sole trader	Low ICT contact, no market demand
Stage 1: Threshold: keen to try ICT; unsure how		
Confident with email, Internet, ready for website	Internal email, sales customer activates, skills productivity issues	Market/ network push ICT use; source of advice not obvious
Stage 2: Beginner: recently online but unsure of where to go next		
Confident with e-mail, Internet, ready for website	Internal e-mail; sales, customer activities; skills productivity issues	Market/ network push ICT use; source of advice not obvious
Stage 3: Intermediate: Internet email, website, no ICT strategy		
Owner grows ICT knowledge, sees benefits of Web, ready to use ICT in admin, and ops	ICT skills and efficiency issues, network benefits	Use of advice and support networks; stronger competition push on costs, access/ delivery issues
Stage 4: Advances: ICT an integral part of business strategy		
ICT capabilities developed; ready for new approaches to business	Knowledge issues; outsourcing; ASP, ICT integrated in systems	Strong competitor and customer ICT skills, clear regulatory and legal frameworks
Stage 5: innovative: capability to exploit ICT strategically in process/product innovations		
Entrepreneurial; high ICT literacy; managers/ workers in effective autonomous working	Sharing corporate culture and vision; knowledge management/ sharing; networked	Strong value chain; Strategic partnership support network; global competition

Table 2 Six staged ICT adoption model (Zappalà & Gray, 2006)

The model, however, is based mainly on SMEs in developed countries and hence the model makes an assumption that SME organisations progress from one stage of ICT adoption to the other through explicit growth strategies that are often more open to external elements. In addition, the model explicitly includes knowledge consolidation procedures for new processes and includes new skills to be outlined at each stage for growth readiness (Zappala & Gray, 2006). Despite the complex nature of the model and its applicability to the developed nation context, the model gives a clear ICT adoption outline that highlights readiness issues and different ICT adoption stages which can be applied for SMEs operating in developing countries.

2.7.3 ICT in Zimbabwe

In the past decade, ICT specialists in Zimbabwe have requested the government to refine its ICT approach, highlighting that this is critical to the advancement of the area in the country. Authorities in Zimbabwe have been discussing the refinement of ICT policy for the past decade, notwithstanding a draft having been embraced by sector players in 2012. The present national ICT strategy is currently more than nine years of age (Tsarwe, 2014).

It has been pointed out in various sectors of the nation that there is a need to review the current policy. The review will ensure that the policy is aligned with modern trends and identifies with the views of authorities, industry and the citizens of Zimbabwe and ultimately enhances the economic growth of the country (Tsarwe, 2014).

While a few players contend that the review of the policy would provide a clear framework in the ICT industry, there are others who believe that its refinement would not have any kind of effect. This is because the country's challenge is not the absence of a morden-day policies, but instead subsidising of ICT activities to advance the sector. Most policies in Zimbabwe have neglected to pull in financing to facilitate ICT undertakings to advance e-education, e-government, e-business and making tech-centre points that focus on elevating free access to the web, advancing venture capital and infrastructure (Kabanda, 2014).

According to Zindiye and Roberts-Lombard (2012), innovative organisations in Zimbabwe will keep on being innovative on their own. Unlike in Zimbabwe, ICT policies in developed countries are aimed at enhancing ICT growth through various incentives.

In addition, the reviewed policy will also not be effective without the sufficient funding to sustain it (Zindiye & Roberts-Lombard, 2012).

The degree of ICT integration in any country depends on the ability of its ICT sector to avail relevant services in a cost-effective and viable manner. ICT in Zimbabwe is characterised by an assortment of players who, in the last decade, have been fighting to remain vibrant in offering efficient internet services as well as, broadcasting and telecommunication services (Kabanda, 2014).

In recent years, Zimbabwe has seen the liberalisation of various ICT sectors (Zindiye & Roberts-Lombard, 2012). The government has set up regulatory bodies like the Postal and Telecommunications Authority of Zimbabwe (POTRAZ), as a way of acknowledging the critical value of ICT to the economic turn-around of the country (Zanamwe, Bere, Zungura, Nyamakura, & Muchangani, 2012).

The country has two privately owned mobile Network companies (TELECEL and ECONET), and one government-owned operator (NETONE), with a total national subscription of over 4 million by 2014 (Kabanda, 2014). These operators have upgraded to 4G technology and have extended their tent pegs to some of the most remote areas of Zimbabwe in the last five years, resulting in an enhanced ICT atmosphere within the country (Tsarwe, 2014). Mobile money services have taken centre stage in recent years especially due to the cash crunch currently being experienced in the country. The three mobile service providers have integrated their services to allow for the payment of major utilities through mobile money. Mobile companies have also partnered with banks to allow for transfers and payments (Tsarwe, 2014).

Furthermore, the country has nine registered Internet Service Providers (ISP), registered under POTRAZ with over 70 thousand subscribers recorded in 2013. Generic mobile applications like Facebook and WhatsApp have gained popularity in recent years and have transformed online communication within the country (Kabanda, 2014).

However, the integration of ICT through online platforms in business operations is still an unfulfilled dream with most organisations still relying on traditional means of gaining a competitive edge (Chimhangwa, 2012). Despite a global fibre link connection

recently installed in the country, connectivity prices are still expensive with 1 GigaByte of data going for at least US$10 (R140) (Kelly & Cook, 2014).

Most processes in industry are characterised by duplication and redundancy and still lack automation, which often results in a lack of accountability and transparency and inferior products and services (Chimhangwa, 2012). Most corporates have not harnessed the power of social media as a marketing tool with none or underutilisation of key e-commerce and marketing applications such as Facebook and Twitter (Shoko, 2012).

Most of the sectors in Zimbabwe, which include the banking and agriculture sector, have been failing to fully exploit the ICT infrastructure that currently exists, with utilisation only limited to basic processes that do not fully enhance business processes in organisations (Dube, Chitura & Runyowa, 2009). The use of the internet is still at an embryonic level dominated mostly by entertainment and social networking and hence lacking an effective commercial application like e-commerce (Shoko, 2012).

ICT usage in most organisations in Zimbabwe is still embryonically characterised by the non-utilisation of the internet and social media for non-commercial purposes (Dube, Chitura, & Runyowa, 2010). Online payments are still limited only to a few large organisations with most organisations operating on a cash basis (Shoko, 2012). There is a lack of business value realisation from the available ICT resources.

According to Shoko (2012), the Zimbabwean economy is not internationally competitive as it struggles to command any form of online presence. The functions of the Zimbabwean government are not fully computerised, with most operations characterised by manual procedures (Shoko, 2012). As the largest consumer in the country, the government's underutilisation of ICT translates to a diminished demand for ICT products in the domestic market (Kabanda, 2014).

The government has failed to be a pacesetter in the ICT arena and has undermined the value of partnering with the private sector in developing the country's ICT capacity. The 51%/49% indigenisation laws have also resulted in ICT investors shying away from setting up key ICT infrastructure within the country (Kabanda, 2014).

The strategic plan proposed by the Ministry of Information Communication Technology (MICT), highlighted that the Zimbabwean government had revealed an awareness and

appreciation of ICTs since attaining independence. The initial draft of the National ICT strategy was coined in September 2007 and subsequently the Ministry of ICT was established to ensure a fast ICT dissemination process over all parts of the economy and in turn enhance the national financial advancement plan (Zindiye & Roberts-Lombard, 2012).

The MICT (2010–2014), plan pointed out that sub-Sahara Africa, which includes Zimbabwe, was one of the poorest areas on the planet and had the most constrained access to ICT assets. However, the national (ICT) framework identified key developments in the ICT sector and indicated the following areas (Kabanda, 2014).

- Deregulation of telecommunication industry.
- Founding of the ICT sector frameworks.
- Establishment of the Scientific Research Cabinet Committee.
- Technology enhancements and applications.
- A remarkable growth in internet users.
- Network infrastructure development.
- Immense computerization of government sectors.

2.8 ICT adoption factors

Margherita and Petti (2010), pointed out key factors affecting ICT adoption and revealed that effective ICT adoption requires serious consideration of strategy, people, systems, procedures and culture. Margherita and Petti (2010), also add that a systematic view of these elements is key to the streamlining of ICT adoption and process redesign. Margherita and Petti (2010), developed an ICT adoption outline that analysed the alignment of business and ICT. These authors mostly focused on the internal alignment of business and ICT which included business and Information System groups.

The research by Margherita and Petti (2010), analysed the relationship between the performance of business, technical alignment, social alignment and information system effectiveness. Their results highlighted that the alignment between organisation information clusters and business enhanced ICT effectiveness and the performance of the business. The study concluded that the alignment of business and

ICT that was driven by socio-technical systems in the organisation's infrastructure positively impacted the performance of the business.

Cragg and King (2013), investigated the role of ICT and human development in ICT adoption and revealed that a negative relationship existed between employee development and ICT adoption. However, advocates of ICT adoption strongly believe that ICT adoption has the capacity to enhance the developing goals of developing nations and equip them to leapfrog several steps in their development process. The research also revealed that ICT growth and adoption cannot be a techno-quick-fix for resolving critical development issues due to some unacceptable trade-offs in developing nations (Cragg & King, 2013).

Cragg and King (2013), also agree that ICT effectiveness is critical for the overall economic growth of a country and enhances employee productivity. They add that the adoption of ICT often results in product and process innovation that breaks barriers for human knowledge, participation and economic opportunity.

A study by Kyobe (2011), revealed that the exposure to an international environment and ICT adoption capacity were the two most critical factors of ICT adoption. The study also revealed that state policies were not as significant in influencing ICT adoption which is a deviating view from popular claims that policy implementation is a key determinant of ICT adoption. Margherita and Petti (2010), highlight strategy, training and development, organisational support, leadership and resource availability as the critical factors affecting the adoption of ICT.

According to Cragg and King (2013), the adoption of ICT in SMEs can be outlined in a four-dimension framework. According to Cragg and King (2013), the process of ICT adoption within an organisation is affected by the individual context, organisational context, environmental context and technological context.

2.8.1 Individual context factors

Elements that relate to the individual are critical to the adoption and utilisation of ICT in various organisations. Most personnel in SME organisations are either positioned as managers or are part of a unit or function that executes various tasks. In developing

countries, SME owners often double up as functional and operational managers as well (Stockdale & Standing, 2015).

2.8.1.1 SME owner/manager ICT perception

Various literature recognises SME owner/managers as critical aspects of the ICT adoption process in SMEs (Stockdale & Standing, 2015; Cragg & King, 2013; Caldeira & Ward, 2002). Factors that relate to the owner/manager are mainly concerned with the executive decisions, including financial and resource commitments that are made to shape the direction of the organisation. These decisions also include whether the SME will adopt ICT and if so what form will the adopted ICT take. SME owner/managers have to make these decisions since they drive the business operations of the organisation (Stockdale & Standing, 2015).

The difficulty often occurs when the owner/manager becomes reluctant to drive ICT developments or is ignorant of the developments. An SME owner/manager that is vibrant is key to the transformation and realisation of an SME's objectives (Stockdale & Standing, 2015). When the SME owner/manager lacks the appreciation of ICT innovation, the organisation will often experience stifled growth.

Existing studies have highlighted that a blend of perceptions towards ICT selection and use by the SME owner/manager, assumes an imperative part in the advancement of ICT capabilities, and enhances ICT appropriation and use in SMEs (Caldeira & Ward, 2002).

Most SME owners and managers in developing countries are not keen to adopt ICT due to various impediments that surround their business environment, which include the cost of maintaining ICT components, an infantile ICT infrastructure and a lack of knowledge to adopt ICT. Often these SME owners/managers are not ICT driven and lack an acquaintance of technology (Cragg & King, 2013). The ICT awareness and attitude of business owners towards ICT has a huge bearing on ICT adoption in any organisation since they have the potential to encourage the leveraging of ICT in their organisations (Kirby & Turner, 1993).

2.8.1.2 Inferiority complex

Syed and Noor (2009), argue that most societies in developing countries are ripped with inferiority complex issues with the general perception being that ICT is only for the privileged elite which has affected ICT adoption in organisations in these societies. A general phobia of new ideas, an inferior ICT literacy level and a lack of trust in a business society, especially when it comes to transactions are some of the drawbacks and factors affecting adoption of ICT in SMEs (Syed & Noor, 2009).

2.8.1.3 Education level

The level of education is a critical element that affects ICT adoption and utilisation. According to Sarosa and Zowghi (2003), it is critical for SME owners, managers and organisational members to attain a satisfactory level of education that ensures the drive towards ICT adoption within the organisation. Various studies on SMEs and innovation have revealed that education level is a key criterion for effective ICT adoption (Sarosa & Zowghi, 2003).

A fundamental level of education, for example, General Certificate of Education (GCE), or its universal comparable is basic as it permits simple correspondence and comprehension on business terms in worldwide business. Most SME managers, particularly in developing nations, can't convey in worldwide dialects that offer access to worldwide markets. A general satisfactory level of education would be a secondary school level, albeit higher business capabilities are better (Sarosa & Zowghi, 2003).

Olatokun (2011), also points out that the educational levels in a country will have an effect on how organisations in that nation adopt ICT with a highly educated society often appreciating the value of ICT and leading to more organisations embracing ICT more easily.

2.8.1.4 Level of ICT knowledge

The level of ICT knowledge is also another fundamental factor that affects ICT adoption in SMEs. An acceptable level of ICT knowledge attained by SME managers, and other organisational members can facilitate the SME to embrace appropriate ICT activities in their business (Teo & Ranganathan, 2004; Meso, Musa & Mbarika, 2006).

The lack of ICT knowledge in terms of use and perceived benefit is a critical factor and barrier to adoption. Studies have identified the inability of most owners and managers to identify ICT products or services that are relevant to their businesses and organisations as a key ICT adoption factor (Abor & Quartey, 2010).

According to Meso, Musa and Mbarika (2006), more than 60 percent of the population in developing countries stays below the poverty line and hence attaining any form of ICT skill is often a farfetched goal. Despite the high demand for skilled personnel, the number of ICT graduates in most countries has continued to fall, which has impacted negatively on organisations' efforts to improve ICT adoption. Businesses have also pointed out that universities and technical colleges are failing to produce quality graduates that can effectively leverage technology for business processes (Abor & Quartey, 2010).

A considerable level of appreciation of ICT by SME organisational members will directly impact the further uptake of ICT within the organisation. Because of the accessibility of assets and simplicity of passage into the business sector, SMEs in 40 developed nations have a far superior knowledge of ICT than those in developing nations (Abor & Quartey, 2010).

In a relative investigation of how SMEs in the US and Canada manage ICT, Montazemi (2013), found that SMEs in the US have an enhanced use of ICT and are better guided in the adoptive choices. Abor and Quartey (2010), delineated a high fulfilment of ICT activities in US organisations which has brought about expected levels of web-based business achievement. In most developing nations, a low education level among SMEs is common (Montazemi, 2013). This makes it daunting especially for SME owners to acknowledge and grasp ICT and web-based business openings.

In most cases, SMEs do not have employees with sufficient ICT knowledge. Therefore, there is even a greater need for owner/managers to invest in the training of each employee and to help them to gain the basic skills that might facilitate an easier implementation of e-business solutions suited for each company (Baro, 2011).

2.8.1.5 SME manager experience

According to Olatokun (2011), the experience of SME owners also affects their ICT adoption behaviour. For instance, SME managers that have been in the organisation for a long time and have also been promoted over time are more likely to lean towards new technology as well as changes in organisational culture and structure (Olatokun, 2011). For these owners and managers, change bolsters the workplace and is bound to drive inspiration.

2.8.1.6 Age and gender of organisational members

Ongori and Migiro (2011), contended that the ages of organisational members are often a key factor that determines ICT adoption. For instance, the flexible nature of young organisational members allows for the implementation of new thoughts, ideas and innovation. Frequently more youthful supervisors are more driven towards the utilisation of ICT in business (Ongori & Migiro, 2011).

Studies have also revealed that SMEs with young supervisors or managers adopt ICT more than those with older executives. Managers that are young are often enthusiastic to innovate, take risks and achieve more, unlike their conservative senior counterparts. Literature has also revealed that gender in organisations affects human behaviour and the decision-making system including the response to technology utilisation (Ongori & Migiro, 2011). For instance, a study by Joseph and Mukhopadhyay (2010), shows that males and females vary in their perception towards the use of e-mail and also reveal that males are more comfortable in the utilisation of ICT than their female counterparts. In addition, young male managers in technology-driven markets are often early ICT adopters.

2.8.2 Organisation context factors

Organisational variables are those that are characterised from the nature and characteristic of the firm itself. Various components have been referred to that ruin or propel ICT adoption inside the organisation. These are highlighted below.

2.8.2.1 Top management support and skill

The support and attitude of SME top management plays a vital role in the adoption and use of ICT within the Organisation. SME owners and managers are responsible for establishment of the appropriate vision, culture and policy of the SME (Singh, 2010). SME owners and managers play the critical role of making decisions. Various authors that include Grover (1993) and Tarafdar and Vaidya (2006), confirm that a proactive approach by SME owners and managers facilitates ICT adoption buy-in.

Singh (2010), additionally affirms that the involvement of SME owners and management is critical to the success of ICT adoption and use in SMEs. Tarafdar and Vaidya (2006), reveal through their research on SMEs in developing countries that the support and buy-in of owners and management is a key precondition for effective ICT adoption in SMEs. According to Singh (2010), often the decision to adopt ICT in most SMEs in developing countries is made by the SME owner. Grover (1993), also confirms the point that the Chief Executive Officer (CEO) of the SME, almost always has some influence on the likelihood of ICT adoption.

Tarafdar and Vaidya (2006), point out that the clear definition of the role of ICT within an organisation will positively influence ICT adoption and use. Singh (2010), ascertained that SME owners and managers are the drivers of ICT adoption in developing countries and provide the forward motion for the adoption of ICT. He also adds that most ICT projects in SMEs are guided by top management through effective resource management and acquisition.

According to Kapurubandara (2009), the enthusiasm and skill of the SME top management are what often drive the SME forward and they shape the nature of investment decisions. Caldeira and Ward (2002), confirm that SMEs in developing countries are characterised by poor managerial skills in the conception, planning and implementation of ICT initiatives and there is a tendency not to update technology readily. This is confirmed by Ongori and Migiro (2011), who point out that large corporates are usually more robust in the adoption of ICT compared to SMEs, due to the large pool of available managerial skills.

2.8.2.2 Security, trust, and privacy

Issues of trust, security and protection are among the most basic determinants of ICT adoption (Bharati & Chaudhury, 2015). They point out that security can be portrayed in two classifications: assurance of value-based detail of the clients and protection of the individual data of the respondents. Security concerns which emanate from cyber-attacks, loss of data, hacking and viruses have negatively affected ICT adoption in recent years (Scupola, 2010).

Security concerns have permitted fractional use of web-based business where only electronic mails are accepted (Karanasios & Burgess, 2008). In many developing nations, the Internet is often viewed as a threat by SMEs who may assume it to be a predator of their information (Karanasios & Burgess, 2008)

According to Beatty, Shim and Jones (2011), the term trust has also been releveled as a critical element in the ICT adoption journey for any organisation. Trust passes on an immense number of implications and is profoundly reliant upon setting (Beatty *et al.*, 2011).

The privacy of an individual's information alludes to the individual's ability to personally control information about themselves (Beatty *et al.*, 2011). With the increase in online platforms such as Facebook, Twitter and Instagram, privacy concerns of individuals have turned out to be more critical. Beatty *et al.* (2011), point out that there exist two fundamental ideal models that ensure the client's security: one depends on the client's trust that the system will fit in with their policy of privacy, the other one demands the client's anonymity.

The lack of efficient and adequate ICT regulation in most developing countries is a drawback to SMEs, should security be breached during internet business transactions. Most developing nations are yet to sanction laws for internet business management and any deferrals on this perspective implies that online business activities in SMEs are abridged. Beatty *et al.* (2011), noticed that most SMEs have no financial capacity to secure their ICT networks from viral assaults.

Zhelyazkov (2012), also highlighted trust and security factors as being key to ICT adoption, especially in developing countries where there are phobias of internet viruses, a heightened danger of data theft, compromised electronic transactions and a lack of appropriate regulations and laws that facilitate ICT use.

2.8.2.3 Finances

Amongst the difficulties that prevent advancement in ICT adoption in SMEs is the issue of financial capacity as it identifies with the measure of resources that a firm can utilise to acquire ICT assets for business execution, marketing and delivery of products and services (Mutula & Van Brakel, 2007). In another study in the UK, it was discovered that cost was not an inhibitor of ICT adoption among SMEs. In most developing nations, SMEs have almost no financial capacity to secure fundamental ICT tools or to wander into online business activities (Mutula & Van Brakel, 2007).

ICT adoption is also affected by financing and cost of ICT equipment and installation and determination of the rate of return from ICT investments. Most SMEs in developing countries do not have access to bank loans and will most often fail to obtain capital to enhance their ICT efforts (Ongori & Migiro, 2011). SMEs with sufficient financial stability are probably going to embrace ICT as they can bear the immense costs related to ICT establishment, procurement and usage (Olatokun, 2011).

Finances are a critical element in the development of SMEs in both developing and developed countries (Stockdale & Standing, 2015). They ascertain that most SMEs in developing countries are daily faced with the mammoth task of financing their business operations. Ongori and Migiro (2011), also add that the constrained access to financial resources in SMEs is more critical compared to larger corporates which often has negative consequences for ICT adoption and use.

Stockdale and Standing (2015), also add that because of the lack of financial resources, SMEs in developing countries fail to cope with costs related to the adoption of ICT which include training costs, hardware and software purchasing costs, support costs, scalability costs and maintenance costs.

2.8.2.4 ICT information access

The constraint related to ICT information access was also pointed out as one of the elements influencing SMEs in the adoption of ICT amongst SMEs in Botswana (Duncombe & Heeks, 2013). Some SME owners do not have the enthusiasm and innovativeness to act past their environment (Duncombe & Heeks, 2013).

Most of the time, particularly in developing nations, SME managers do only the bare minimum to acquaint themselves with the latest technology. SME owners who have griped about the cost of ICT have not investigated other reasonable methods for getting to worldwide markets, for example, open-source programs, short message benefit (SMS), and other new areas of ICT (Scupola, 2010).

Past investigations (Mutula & Van Brakel, 2007; Shanker, 2008; Kapurubandara, 2009), accentuate the significance of skilled ICT staff in the organisation and outsourcing ICT firms to assist with the utilisation of ICT. Shanker (2008), found that skilled ICT personnel is vital for ICT movement in the UK SMEs. He additionally contends that this factor is more critical than financial capacity.

2.8 2.4 Size of the organisation

Various authors have pointed out that the size of the SME can impact ICT adoption (Thong, 2011; Bharati & Chaudhury, 2015). Bigger organisations are known to have a lot of assets available to them (Bharati & Chaudhury, 2015). SMEs will often find it exceptionally difficult to procure ICT systems because of the high cost of set-up.

In the US, Bharati and Chaudhury (2015), considered the degree and nature of ICT adoption in SMEs in the Boston zone. They found that organisation size significantly affects ICT adoption. Further, they found that basic ICT tools, including Web and bookkeeping systems, were utilised generally over every single firm size, while complex ICTs, like Customer Relationship Management (CRM) were significantly utilised by larger organisations.

As of late, the effect of size has by and large been observed to be an irrelevant impact on ICT adoption (Karakaya & Shea, 2008), potentially in light of the fact that the playing field has been levelled with better and simpler coordination to convey online business frameworks.

2.8.2.4 Lack of proper guidance

According to Zhelyazkov (2012), one of the key factors that affect ICT adoption in SMEs in developing countries is the lack of proper guidance. The decision to adopt the relevant ICT requires guidance especially if the SME stakeholders are not

knowledgeable on the tools to be adopted. Jordan (2002), highlights that most SMEs in developing countries lack the time, energy and ability to migrate to new technologies, mainly because of a lack of expertise, support and guidance. Jordan (2002), argues that SMEs in developing countries do not only lack the relevant information that facilitates the adoption of relevant ICTs but they also do not have a resource base of partners and experts who can facilitate ICT adoption.

2.8.2.5 Resource management

According to Ongori and Migiro (2011), most SMEs in developing countries are constantly lacking in expertise, knowledge and time. They add that SME owners in developing countries are constantly looking for ways and means of stretching the SME's limited resources as much as possible. This means that the allocation of the same scarce resources to new ventures that include the adoption and use of ICT will often require some serious commitment (Ongori & Migiro, 2011).

Priem and Butler (2001), argue that SMEs in developing countries need to have a balanced blend of resources and capabilities in order to realise or gain a competitive edge within the environment they operate in. According to Priem and Butler (2001), one of the critical ways an SME can distinguish itself from competitors is through ICT investment which will ensure a sustainable competitive edge. Ongori and Migiro (2011), additionally point out that SMEs that are willing to integrate ICT applications in the business operations must tackle the huddle of both resource and economy of scale challenges.

2.8.2.6 Perceived advantages of ICT

The perceived advantages to be received from adoption and utilisation of ICT is a key factor that is highlighted in various research (Chibelushi & Costello, 2012; Looi, 2010). Most SMEs in developing nations are uninformed of what and how ICT can be of advantage to them because of the absence of training and at times ignorance. They regularly state that observing the benefit of the innovation before utilising it, is somewhat challenging. Another element that enhances this is the 'negative mentality' in some SMEs with respect to ICT adoption (Chibelushi & Costello, 2012).

Looi (2010), highlights that small to medium farmers that are optimistic to embrace ICT perceive certain benefits and hence they are less hesitant to invest their resources in obtaining these benefits. The benefits for these farmers are often new customers and revenue increases. However, it is also key to note that the level of education of these farmers also plays a key part in determining ICT adoption and utilisation.

According to Chibelushi and Costello (2012), most SME owners and managers in developing countries have their mind set only on return on investments, therefore, they are often reluctant to invest substantially when there are no guarantees of short-term returns. This is most often prevalent within the very high uncertain developing country context.

2.8.2.7 ICT training

The level of skill, awareness and technical knowledge in organisations is also key to ICT adoption because this will affect the relevance, appropriateness, quality and quantity of the selected ICT. The adaptability of the training system within an organisation will in most cases also affect ICT adoption since this will determine ICT training policies and how an organisation copes with technological changes (Kabanda, 2014). Most owners, however, are of the notion that once employees are trained on a particular technology they will then leave the organisation for greener pastures (Kabanda, 2014).

Most SMEs in developing countries do not consider employee ICT training as a critical component of employee development because they fear losing the trained employees to competitors, hence there is a reluctance to develop the ICT skills of employees (Apulu & Latham, 2009). However, there are other SMEs who are forward-looking and have invested in developing the ICT skills of employees through workshops and seminar programs.

The provision of employee ICT training programs ensures the opportunity to learn new ICT skills better, unlike when these employees study on their own. On the other hand, sufficient technical support ensures on-time solutions to any challenging situations faced during ICT adoption. A supportive workplace environment includes organisational commitment and the key resources that offer organisational members

impetus and benefits for utilising ICT tools (Alaghbandrad *et al.*, 2014). Top management support enhances the extent to which employees utilise ICT. Kabanda (2014), also adds that open communication and a favourable environment where ideas are freely exchanged promotes ICT adoption.

It is noted that training and a supportive organisational learning environment will often drive and motivate employees towards utilisation and adoption of ICT. This innate drive is a critical element that has seen most SMEs in developed countries adopting new ICT innovations. A supportive environment coupled with past experiences, enhance and promote ICT adoption (Alaghbandrad *et al.*, 2014).

The reluctance of most SMEs to invest in ICT training often affects their level of adoption as this hinders the development of technical abilities within the organisation. Chacko and Harris (2011), point out that most organisations in Africa do not adopt ICT because they cannot comprehend the suitability of ICT in their business model.

2.8.2.8 Organisational culture

Researchers have also expressed the need to consider social and cultural factors in the adoption of ICT in developing nation (Avgerou, 2013; Mpofu & WatkinsMathys, 2011). They additionally contend that social and cultural elements are regularly disregarded when ICT is transported from developed nations to developing nations where it is implemented. ICT adoption in most developing countries has been linked to organisational cultures that discourage and do not reward any form of innovation. A flexible production environment within an organisation will in most cases positively impact ICT adoption (Mpofu & WatkinsMathys, 2011).

Hoffman and Klepper (2010), point out that an organisational culture that encourages and celebrates new ideas and innovations has the potential to facilitate the SME's inclination towards the adoption of ICT. According to Olutimayin (2012), technology in itself is considered to be part of an organisation's culture. The presence of a change presupposes the acceptance of culture. Hence the rejection of a certain technology in an organisation or society means that technology does not form part of the society or organisation's culture (Olutimayin, 2012). Societal culture is hence a critical element of the adoption and use of ICT in developing countries (Hoffman & Klepper, 2010).

According to Mutula and van Brakel (2007), the majority of SMEs in developing countries do not have organisational cultures that facilitate the discussion of emerging and innovative ideas. The lack of these discussions on new and innovative ideas hinders owners and managers within SMEs to pursue the development and adoption of new ICT applications (Apulu & Latham, 2009).

The culture of an organisation has been recognised in the literature as a key issue influencing the appropriation and utilisation of ICT in SMEs (Olutimayin, 2012; Mpofu & WatkinsMathys, 2011). Avgerou's (2013) work has been valuable in outlining the role of culture in ICT adoption research. The following are some key cultural dimensions found in organisations:

- power: the degree to which organisational members acknowledge that the power in an organisation is dispersed unequally;
- uncertainty evasion: the extent with which organisational members feel awkward with vulnerability and equivocalness;
- individualism versus community: the degree to which a person considers themselves to be an individual as opposed to some portion of a gathering;
- masculinity versus femininity: preference for accomplishment, chivalry, empathy and material accomplishment instead of woman's rights which alludes to an inclination for connections, mindful and personal satisfaction; and
- time orientation: the relative significance of the here and now versus what's to come.

As an African country, Zimbabwe's society is described as one that has a low degree of individualism and because of that, the business environment prefers non-formal means of communication and social interactions (Duncombe & Heeks, 2010).

In his examination in South African SMEs, Humphrey (2011), found that SME managers were keener on setting up eye to eye meetings than online-empowered business discourses. This authenticates prior research by Duncombe and Heeks (2010), who found that SMEs and rustic small-scale business people in Zimbabwe depended on casual, social and local information systems. Other than being neighbours, Zimbabwe and South Africa share various striking convictions and societies that are by and large comparative. Zimbabwean culture is mostly slanted to being concerned about others in the general public.

This rationality of life has to a substantial degree been continued to the corporate world to impact business connections. The individual is conceived out of and into the group, in this way the individual will dependably be a piece of the group. Reliance, communalism, affectability towards others and watching over others are generally part of the African culture (Humphrey, 2011).

Avgerou (2013), found that Taiwanese culture had an effect on ICT adoption and this was additionally separated, relying upon industry affiliations. In the Chinese setting, Chibelushi and Costello (2012), portray a web-based business situation that is relationship-based and socially determined by a Chinese expression called '*guanxi*'. Further, the relationship-based internet business stresses personal trust, contextual and informal information, and obscured limits amongst business and government (Chibelushi & Costello, 2012).

2.8.3 Technological factors

Technological factors are those that are acquired from the nature and characteristic of the ICT that the SME utilises or expects to use for business operations (Scupola, 2010). These factors are examined below.

2.8.3.1 Internet accessibility

In many developing nations internet accessibility for SMEs has extraordinarily added to the postponement in embracing various ICT tools (Molla & Licker, 2005). Despite the fact that Internet is accessible, the adoption and utilisation of technology in SMEs is hampered by the absence of power, particularly in rustic territories (Molla & Licker, 2005). Further, the slow speed of the Internet does not spur or advance web-based business reception (Mutula & Van Brakel, 2007).

2.8.3.2 ICT complexity

The intricacy of ICT can be viewed as a key factor influencing ICT adoption in SMEs. A few organisations have been wary to embrace ICT as a result of concerns of information management issues between the old and new ICT applications (Forman, 2015). SMEs whose managers have some technology mastery can comprehend ICT

adoption in their organisations and continue to implement as they so wish. The dread of innovation may block a few managers from considering ICT improvements in their organisations (Forman, 2015).

2.8.3.3 ICT strategies

Jennex and Amoroso (2004), noticed that organisations need to build up strategies that enhance ICT adoption in their operations. The nature of organisational strategies and management have a huge bearing on ICT adoption within organisations as these have the potential to drive an organisation towards adoption and utilisation of ICT in their operations. Most organisations generally lack the strategic stamina that can turn ICT into an innovative tool. Ignorance and a lack of exposure had led some managers to not see the value of key ICT tools like e-commerce and business applications (Chacko & Harris, 2011).

2.8.4 Environmental factors

The SME's external environment also affects ICT adoption (Scupola, 2010). The environmental factors include natural disasters, logistics and telecommunications infrastructure, government role, nature and characteristics of the value chain, economic and political instability, business partner affiliation and preferences on human-rights issues, business culture, macroeconomic policies, floods, and earthquakes. A brief review of each of these follows.

2.8.4.1 Government role

The government's role in providing different types of mediation has been referred to as a catalyst for the advancement of ICT adoption in SMEs (Southern & Tilley, 2000; Sarosa & Zowghi, 2003). Government support can come through policies that facilitate SME operations in the country, institutional support for technological assistance and finance provision and the sanctioning of well-articulated ICT business laws (Scupola, 2010).

Researchers (Dunt & Harper, 2002, Martinsons, 2008), highlight that the capacity of developed nations to receive and utilise ICT at cutting edge levels has been

significantly improved by their government's proactive part in providing the enabling infrastructure that enhances ICT adoption. This is frequently ailing in developing nations on the grounds that their governments are normally more worried about issues of unemployment and poverty eradication (OECD, 2004).

Chan and AlHawamdeh (2002), highlight a case where the government plays a part in the advancement of ICT adoption in Singapore, where steps have been taken to enhance ICT adoption by sanctioning effective ICT policies. Unfavourable government and policies smother innovativeness among SMEs, debilitating the enhancement of ICT adoption.

National policies have the potential to negatively or positively impact ICT adoption in organisations as policymakers can coin policies that create an enabling environment that supports and encourages ICT use (Syed & Noor, 2009). Government support and subsidies can have a massive effect on ICT adoption in organisations since the right and appropriate initiatives can positively influence the use of ICT in organisations (Baro, 2011).

2.8.4.2 Value/supply chain business partners

Another factor that impacts the reception ICT adoption in SMEs is the business partner who might be a customer or supplier (Parker & Castleman, 2009). The presence of business partners is significantly engaging for SMEs in environments where there might not be any trusted alternative partners. The relationship with business partners is often typically portrayed from the supplier and customer points of view. SMEs will more often than not have a desire to create and develop a business relationship with the point of building up an enduring business organisation (Parker & Castleman, 2009). This thought functions well if the business partnership perceives the value and upper hand that this can bring to the two associations.

Martinsons (2008), in a UK SMEs study, found that supplier or customer demand is a huge factor that drives ICT adoption. Conversely, this will often limit the participation of SMEs if their business partner does not value ICT innovations or are unfavourably affected due to other micro challenges.

The nature and characteristic of the value chain in the business to business commercial market, social connections amongst purchasers and merchants can open up space for ICT adoption. Research conducted in South Africa has shown that SMEs may not adopt ICT due to the peculiar characteristics and nature of certain industries, such as the horticultural and clothing ventures (Martinsons, 2008).

The closed nature of such enterprises does not require the need to utilise ICT, as all partners are often inside a closed market framework (Parker & Castleman, 2009). Any choice to adopt ICT should be considered alongside other stakeholder's positions in the market framework. Economic and political instability will often inhibit SME growth which might lead SMEs to do just the bare minimum to survive. This puts ICT adoption way down the line of objectives for the organisation (Parker & Castleman, 2009).

In most organisations, ICT adoption has empirically been related to both organisational value chain and competitive characteristics. If a business's customers and suppliers are not prone to the use of ICT then this often discourages the business from adopting any form of ICT to enhance their operations (Parker & Castleman, 2009).

2.8.4.3 Business environment culture

The business culture in the SME sector has also been pointed out in literature as a critical factor that affects ICT adoption (Martinsons, 2008; Thong, 2011). This has been observed to be different from nation to nation, even among developed nations (Scupola, 2010). For instance, most SME owners in southern Africa and Botswana specifically, have low uncertainty avoidance and low individualism, which highlights that organisational members in these organisations can easily interact and share ideas with other members without much consideration of losing individual identity. This can positively influence ICT adoption as ICT can be utilised to enhance the sharing of ideas between organisation members (Scupola, 2010).

2.8.4.4 Infrastructure

Kapurubandara (2009), ascertains that an accessible and effective infrastructure is critical to the ICT adoption level of organisations and this relates to the cost and availability of internet connectivity, electricity supply and the telecommunication

infrastructure. The nature of the business environment within any economy has a bearing on ICT adoption within its organisations and can affect the competitive edge of businesses (Hildalgo & Albors, 2010).

The absence of payment facilities that include credit cards has hindered the effective utilisation of ICT tools in most African countries (Mendo & Fitzgerald, 2005). Another key element influencing ICT adoption is the inconsistent supply of energy or power to work ICT hardware. In Tanzania (Jennex & Amoroso, 2004), and Botswana (Mendo & Fitzgerald, 2005), past studies found that the absence of energy or power counteracted SME business ventures, particularly in rural territories from effectively adopting ICT.

2.8.4.5 Macroeconomic policies

Key macroeconomic policies in developed and developing nations can be viewed as key catalysts for e-commerce growth and ICT adoption (Martinsons, 2008; Molla & Licker, 2005). In their study on the role of institutions in the adoption of ICT, Molla and Licker (2005), discovered that the early stages of ICT adoption are influenced by key public and external institutions who play a key role in setting up a conducive environment that allows for the impetus necessary for ICT adoption. In developing countries, alternative forms of regulatory policies are often pursued to enable ICT adoption to complement efforts made by their governments.

2.8.5 Summary of ICT adoption factors

INDIVIDUAL CONTEXT FACTORS	ORGANISATION CONTEXT FACTORS	TECHNOLOGICAL FACTORS	ENVIRONMENTAL FACTORS
SME Owner/Manager ICT perception	Top management support and skill	Internet accessibility	Government Role
Inferiority Complex	Security, Trust, and Privacy	ICT complexity	Value/Supply Chain business partners
Education level	Financial factor	ICT strategies	Business environment culture

Level of ICT knowledge	ICT information access		Infrastructure
SME manager experience	Size of the organisation		Macroeconomic policies
Age and gender of organisational members	Lack of proper guidance		
	Resource management		
	Perceived advantages of ICT		
	ICT Training		
	Organisational Culture		

Table 3 Internal and External Factors Affecting ICT Adoption *(*Kapurubandara, 2009)

2.9 ICT adoption theories

This section discusses key theoretical frameworks that will facilitate the development of the implementation framework for ICT adoption and use in Zimbabwean SMEs. The theoretical underpinning for this study will draw from 3 main models, namely the Diffusion of Innovation Model (DOI), The Technology, Organisation and Environment Model (TOE), and the Unified Theory of Acceptance and Use of Technology (UTAUT) model to facilitate the identification and classification of the factors affecting ICT adoption in Zimbabwean SMEs. These will be used as the building blocks of the implementation framework.

2.9.1 The Diffusion of Innovation (DOI) Theory
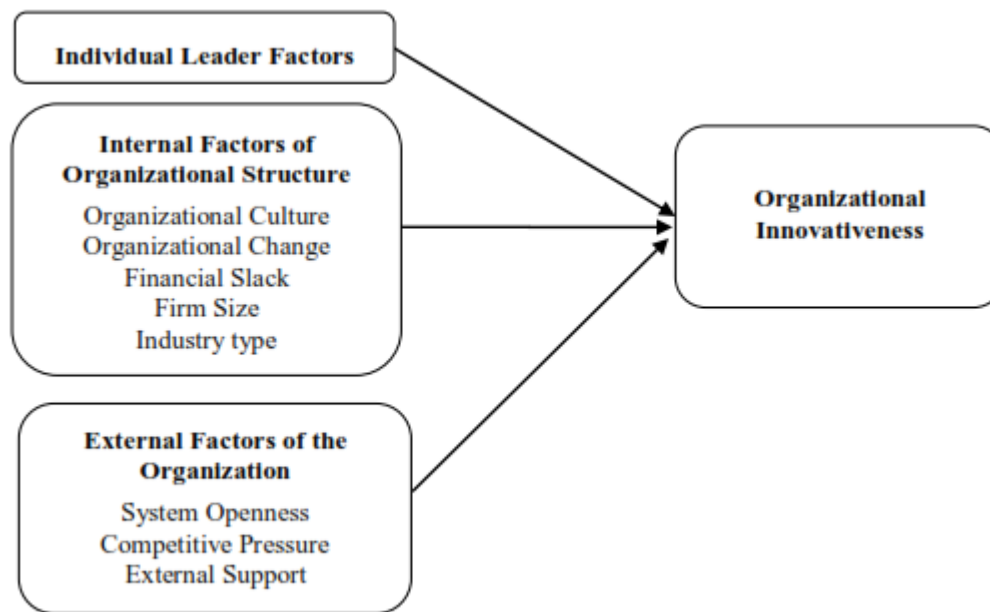
Figure 3 Diffusion of Innovation Model (Rogers, 1995)

The Diffusion of Innovation (DOI) theory reveals that organisational innovativeness is directly related to three elements which are external factors of an organisation, internal organisational characteristics and individual characteristics (Rogers, 1995). The theory has been used in various scenarios on ICT adoption in developing countries by researchers who include Syed and Noor (2009); Maseko (2014) and Radaev (2001).

Moore and Benbasat (1991), employed the DOI model to design a tool that is used to analyse individual perceptions of technology adoption. The theory seeks to clarify the process of innovation acceptance in a population. DOI provides an in-depth understanding of different user segment needs and qualities that are key to the spread of innovation and the role of peer-peer relationships. The DOI model sheds more light on the factors that affect the adoption of ideas, products and practices within members of a particular culture (Rogers, 1995).

A diffusion related study seeks to investigate how designs or concepts are disseminated within a group of people. According to Rogers (2003), the theory highlights and focusses on the conditions that facilitate the adoption of a technology or innovation within the members of a given social system.

Rogers (2003), developed the diffusion process and stressed that in any society, only a few members are initially open to new innovations. These few early adopters are

responsible for spreading the word which leads to the development of a critical mass as more people begin to open up to the new idea. A saturation point is then reached when maximum diffusion of the innovation is reached within the population. Rogers (2003), identified four key elements of the DOI process namely innovation, communication channels, time and social systems.

2.9.1.1 Innovation

"Innovation is an idea, practice, or project that is perceived as new by an individual or other unit of adoption" (Rogers, 2003:120). It is an innovation regardless of the time it was conceived and as long as it is perceived to be new by individuals. Persuasion, knowledge and decision are the key ingredients that relate to an adoption's newness characteristic. Rogers (2003), points out that uncertainty is one of the main obstacles to innovation adoption and hence the advantages and disadvantages of an innovation should be clearly pointed out to individuals.

2.9.1.2 Communication channels

The second component of the process are the communication channels, pointed out by Rogers (2003), as being key in the adoption of an innovation. He points out that these are critical information conduits that facilitate the dissemination and creation of information and aid participants in understanding a phenomenon. The two main channels of communication are interpersonal communication and mass media which include radio, television and newspapers. Rogers (2003), points out that the main channel that is often utilised for innovation diffusion is interpersonal communication. This social process is often accredited with major changes in individual attitudes.

According to Rogers (2003), an effective diffusion of innovation is often facilitated by a heterophilous relationship between individuals who exhibit different characteristics. He also categorised communication channels into cosmopolite and localite. Cosmopolite channels being the main knowledge pools during diffusion and these include all mass media channels whilst the localite social network channels are mostly significant at the persuasion stage (Rogers, 2003).

2.9.1.3 Time

Time is one of the most understated artefacts of the DOI process. This is a key element that defines the adoption rate and gives character to the diffusion process (Rogers, 2003). Components that relate to time within the DOI process include the process of innovation diffusion, the rate of innovation adoption and innovativeness.

2.9.1.4 Social system

The social system is a significant component of the diffusion process as it facilitates the dissemination of information through various social links and networks that form an information system. Rogers (2003), also points out that the culture and nature of a social system has major implications on innovativeness.

These elements are relevant to this study as they will facilitate the identification of key communication channels that enhance ICT adoption in Zimbabwean SMEs.

2.9.1.5 The innovation-decision process

Rogers (2003), proposed a five stage innovation-decision process that highlights an information processing activity and seeks to limit uncertainty during an innovation adoption. The five steps proposed are persuasion, decision, knowledge, implementation, and confirmation.

The knowledge stage is where an individual becomes aware of an innovation and obtains information that relates to it. The critical questions that an individual asks during this stage are related to the why, what and how (Rogers, 2003). An individual will seek to find the key characteristics of an innovation during this stage. It is at this stage that an individual will obtain knowledge that pertains to the existence of an innovation, how to effectively utilise the innovation and the functioning principle of the innovation that sheds light on why and how it works (Rogers, 2003).

The second stage in the innovation diffusion process is the persuasion or feeling step where an individual begins to form an opinion on the innovation at hand. Through the social system and interpersonal channels, beliefs and feelings towards the innovation begin to manifest as the individual receives information from close peers on the advantages and disadvantages of the innovation (Rogers, 2003).

During the decision stage, the individual proceeds to choose either to reject or adopt the innovation. A partial trial process often enhances the changes of a quicker and positive outcome. Rejection during this stage can either be passive, where there are no thoughts of adoption or active, where after a trial run and contemplation the individual rejects the innovation (Rogers, 2003).

The innovation is put to practice during the implementation stage and change agents are employed to facilitate implementation and reduce the level of uncertainty (Rogers, 2003). The implementation stage also ushers in reinvention, where the innovation is modified and adjusted to suit the adopter's needs and in turn utilised more rapidly (Rogers, 2003).

Finally, the individual obtains adoption support during the confirmation stage and eliminates any conflicts with regard to the adoption of the innovation. This stage cements the individual's attitude towards the innovation and is critical in determining continuity in the use of the innovation. However, if discontinuity occurs at this stage it is often because of the discovery of a better version of the innovation or dissatisfaction with the performance of the innovation (Rogers, 2003).
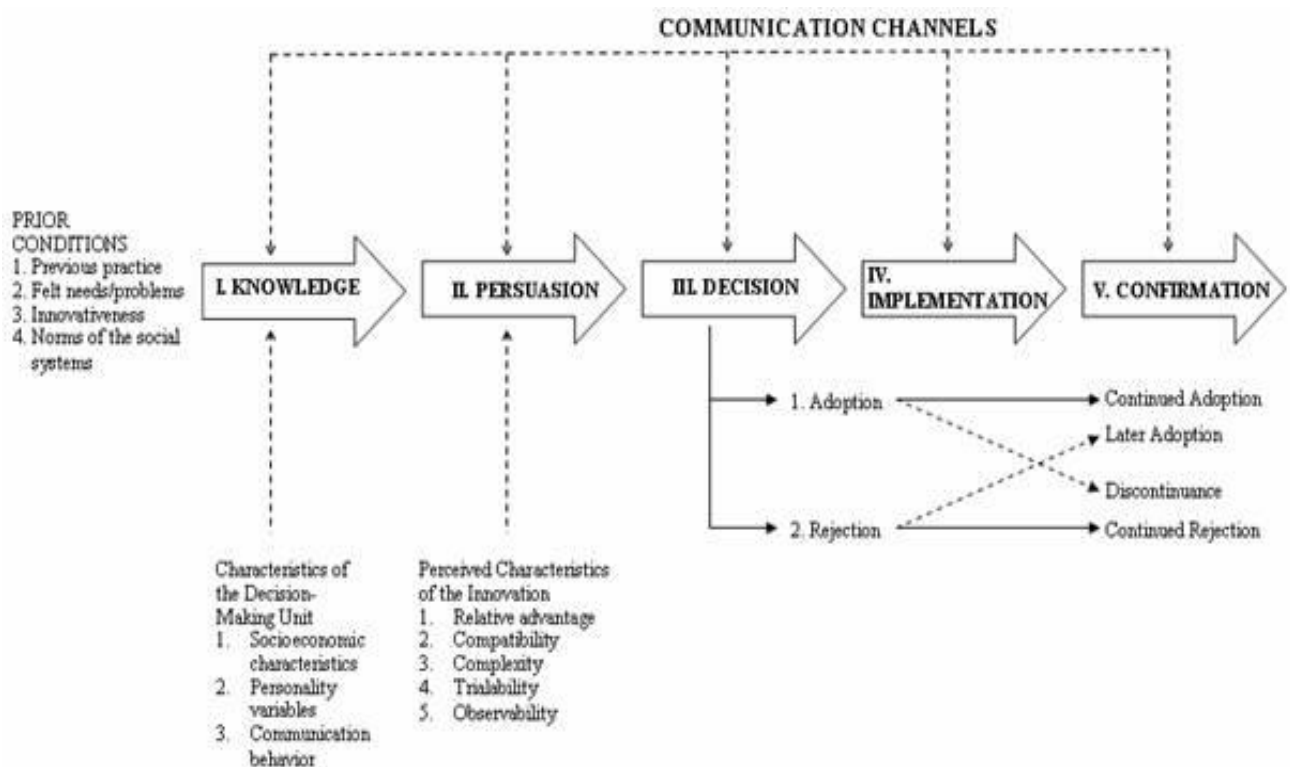
Figure 4 Diffusion of Innovation Process (Rogers, 2003)

The DOI process is critical to the development of the ICT adoption framework as it will facilitate the implementation process of the framework. The various steps will be incorporated suitably to ensure that uncertainty is reduced.

2.9.1.6 Attributes of innovations

Rogers (2003), points out five uncertainty reduction attributes during adoption which include:

- relative advantage - this is the extent to which the performance of an innovation supersedes perceived expectations which accelerates adoption;
- compatibility – this is the degree of consistency of the innovation with current needs, values and previous experiences of adopters. adoption is often easier and quicker when high levels of compatibility are realised;
- complexity – the extent to which an innovation presents challenges in use and understanding. complex innovations are less adopted than simpler ones;
- trialability – this is the degree to which a trial run can be done with the innovation. this reduces uncertainty and increases the speed with which adoption occurs; and
- observability – this is the extent to which the performance results of an innovation are evident, which enhances the chances of adoption.

Rogers (2003), proposed five categories of innovation adopters highlighted in the table below.

Category	Description
Innovators	2.5% of the first people to adopt an innovation are innovators and these possess strong interpersonal communication channels and can quickly deal with uncertainty during the adoption process.
Early Adopters	Comprises 13.5% of individuals in a social system and are mostly localites and opinion leaders. These are generally the first targets of change agents as they set the tone and model an effective and fluid adoption process.

Early Majority	This group comprises the next 34% of individuals who adopt an innovation just before the rest come on board. Contemplation is common in this group before adoption occurs.
Late Majority	These individuals only adopt after yielding to social network and peer pressure. This group is comprised of sceptics and very cautious individuals with a high level of uncertainty when it comes to adoption.
Laggards	The last 16% of people in a social system who do not have a leadership opinion and only use the past as their point of reference. Highly resistant and suspicious of any new innovation.

Table 4 Categories of Innovation Adopters (Rogers, 2003)
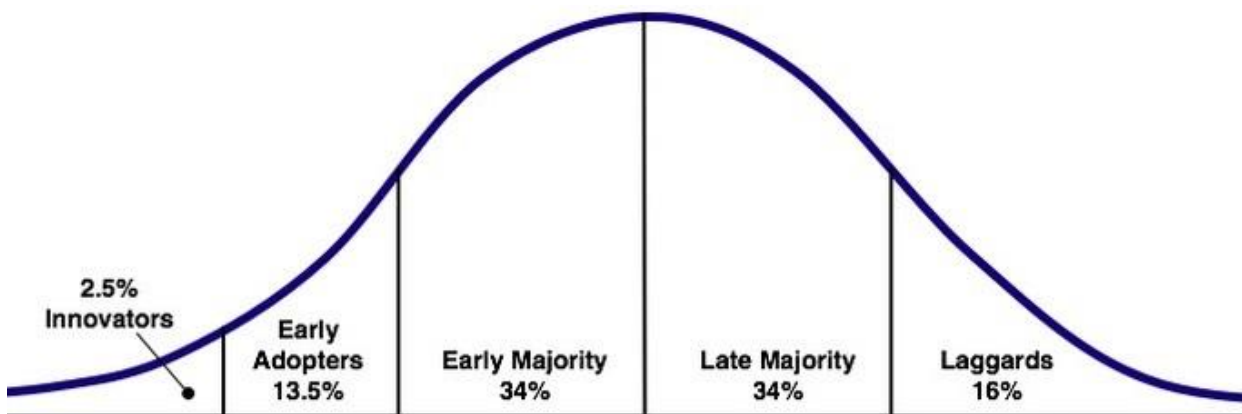
Figure 5 Categories of Innovation Adopters (Rogers, 2003)

The Diffusion framework offers an all-encompassing guideline to study ICT adoption in SMEs, as it contains relational perspectives and adoption decision-making processes that conceptualises ICT adoption in Zimbabwean SMEs. The theory also facilitates this research as it sheds more light on the foundational elements and attributes of ICT innovation adoption that will aid in the development of the ICT adoption framework. The DOI will also help the researcher in identifying the most effective communication channels that ensure adoption of ICT innovations in Zimbabwean SMEs. The theory also introduces the elements of complexity and compatibility which are critical in the formulation of key ICT adoption framework constructs.

However, the theory fails to take into consideration other social actors at various levels and networks that affect ICT adoption in developing countries (Dyerson & Spinelli,

2001). Hence it is critical to integrate the DOI elements with other theories such as the Unified Theory of Acceptance and Use of Technology (UTAUT), and The Technology, Organisation, and Environment (TOE) framework, to effectively coin a relevant framework for ICT adoption.

2.9.2 The Technology, Organisation, and Environment (TOE) framework

The TOE framework, which was coined by Tornatzky and Fleischer (1990), ascertains that three elements are influential in how an organisation adopts technology. These three include the organisational perspective, technological perspective and the environmental perspective.
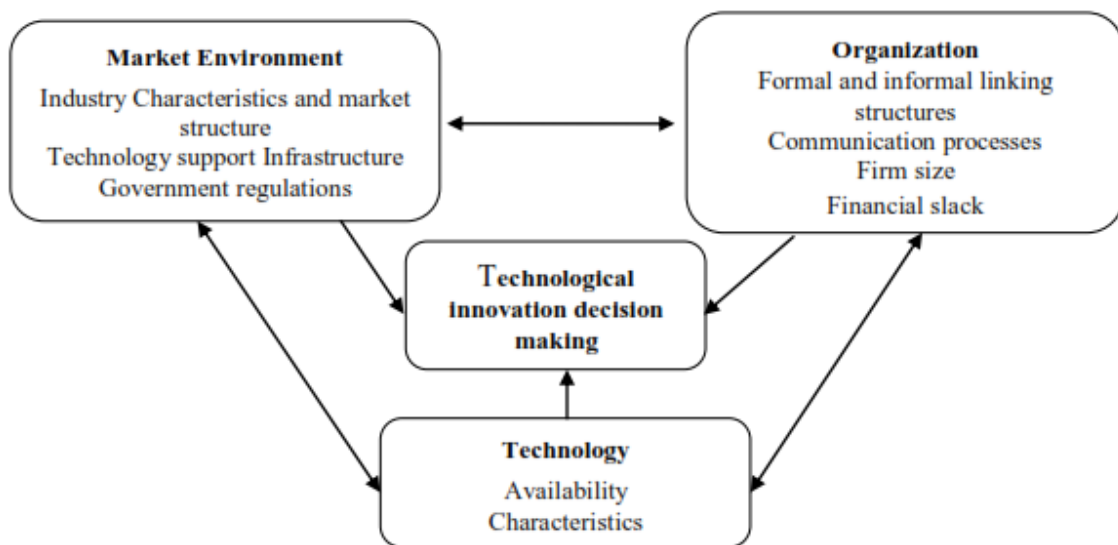
Figure 6 TOE Framework (Tornatzky & Fleischer, 1990)

2.9.2.1 Technological context

According to Tornatzky and Fleischer (1990), the technological perspective dimension is made up of all the external and internal technologies that are significant to an organisation. The key adoption factor in this context is the degree of compatibility of the available innovation with the existing organisational system and the ease of integration and use of the technology. The technological context is encompassed in a systems design view proposed by Tornatzky and Fleischer (1990), which outlines key technology implementing methodologies, namely the technocentric, sociocentric, conflict / bargaining, systems life cycle, and socio-technical systems.

The technocentric perspective highlights the notion that technological factors are key technology implementation ingredients and are complemented by a detailed implementation technical plan, an effective re-engineering and integration process and a criteria for measuring effectiveness.

Sociocentric approach centres on social and organisation perspectives. These relate to social acceptance, inclusion of social issues as well as flexibility and human resource support during planning and implementation (Tornatzky & Fleischer, 1990). The conflict/bargaining view takes into consideration all affected stakeholders and encourages collaboration and cooperation during technology implementation and adoption.

The systems life-cycle method is also known as the software development life-cycle and comprises five steps which include planning, analysis, design, implementation and maintenance. Finally, the socio-technical approach has its roots in social psychology and organisation change practice. It advocates for an integration of the social and technical system during ICT adoption and implementation in an organisation (Tornatzky & Fleischer, 1990).

The technology context outlines existing organisation technologies and all the technologies available in the market. A review of various literature on the adoption of ICT using TOE highlights that the effect of technology characteristics has long been recognised. Various authors have argued the critical nature of a set of technological features on ICT adoption. According to Rogers (2003), there are five key elements of technology that impact the decision to reject or adopt technology in organisations. These include compatibility, relative advantage, trialability, complexity and observability. These characteristics outline the core pillars of Roger's (1995) Diffusion of Innovation theory.

According to Rogers (1995), the attribute of relative advantage which is also known in literature as perceived benefits is a key factor that facilitates the adoption of ICT in organisations. Studies on ICT adoption highlight that organisations that have higher ICT recognition levels are highly likely to adopt a new technology (Rahayu & Day, 2015; Ghobakhloo & Sai, 2013).

It is critical for SMEs to know the perceived benefits of new ICTs as this will have a positive effect on their ICT adoption decisions (Rahayu & Day, 2015). One such key

ICT component is social media, which offers various advantages to adopters especially in establishing concrete relationship with customers, reducing costs related to promotion and advertisement.

The second element identified by Rogers (1995), is perceived complexity, which is also known in literature as perceived ease of use, is a critical technological factor that impacts on ICT adoption in SMEs. According to Ghobakhloo and Sai (2013), there is a negative relationship that exists between an organisation's decision to adopt ICT and the perceived complexity of ICT. Various researchers have highlighted that it is important for technologies to be easily understood and utilised to facilitate the ICT adoption decision. SMEs will most often not adopt ICT that poses a challenge in their utilisation or requires much comprehension to use.

The third factor in the technology context is perceived compatibility, which is indicated in various literature as having a positive correlation with ICT adoption in various SMEs (Alshamaila, Papagiannidis & Li, 2013; Ghobakhloo & Sai, 2013). According to Ghobakhloo and Sai (2013), the introduction of new technologies will most often lead to value-related changes in organisations and will usually interrupt the existing organisation processes. Changes due to ICT adoption may also result in technical infrastructure changes. It is therefore critical to ensure that the changes are compatible with the SME's technological infrastructure, values and work practices (Ghobakhloo & Sai, 2013). From the perspective of an SME owner/manager, it is critical for the adopted ICT to have a high level of perceived compatibility.

The fourth element is observability, which entails the visibility that results from adopting a given ICT and its effect on the industry. Observability affects the ICT adoption decision of SME owner/managers. Various researchers (Azam & Quaddus, 2009; Hussin & Noor, 2005), ascertain that ICTs that have a visible effect are most likely to be adopted by SMEs.

The final element is trialability, which has also been identified as a critical element affecting ICT adoption decisions in the organisation despite the fact that it is the least extensively studied element (Ramdani & Kawalek, 2007). Trialability is a component more prevalent during the early stages of adoption. The availing of trial versions of ICT tools and the provision of information will most often positively affect ICT adoption decisions (Tan, Eze & Chong, 2012).

2.9.2.2 Organisational context

The organisational context of the TOE framework is made up of the culture of the organisation, executive support, the size and quality of the workforce as well as the organisation's innovative ability. The culture of an organisation, which comprises its core values, norms, shared assumptions and identity, are a key ingredient in influencing technology adoption in an organisation. Internal communication and decision-making systems are also significant technology adoption factors that can facilitate the process if applied accordingly (Tornatzky & Fleischer, 1990).

Executive support during or prior to adoption of technology is a key factor that can ensure the success or failure of the process. Leadership support also plays a major role during the change; it is a management process that enables the ease with which a technology is accepted in an organisation. The lack of leadership support will give rise to uncertainty and mediocre participation and decision-making (Tornatzky & Fleischer, 1990).

Adequate availability of technological skills within an organisation will positively impact the level and ability to effectively develop an ICT business relationship within the organisation. According to Tornatzky and Fleischer (1990), the size of the organisation is a significant technology adoption facilitator, as large firms often have more resources that can aid adoption and can withstand any risks that relate to early-stage adoption. Large firms have a more influential ability to convince partners to adopt (Tornatzky & Fleischer, 1990).

For SMEs, various business characteristics have been identified to have the potential of impacting how ICT is adopted. According to Haller and Siedschlag (2011), there are factors from inside the organisation that affect the adoption of ICT and these include the support of top management, the size of the organisation, previous ICT experience and the innovativeness of the CEO.

The size of the organisation is a key factor in ICT adoption outlined in literature. Various research has pointed to the significant relationship that exists between ICT adoption and the organisation size (Pan & Jang, 2008; Zhu, Kraemer & Xu, 2003; Thong, 1999). Large corporates often have sufficient human and financial resources that facilitate the effective adoption of ICT (Haller & Siedschlag, 2011). However,

different perceptions also exist with regards to the importance of organisation size on ICT adoption in SMEs.

Oliveira and Martins (2011), however, argue that the flexible and simple management structure that exists in SMEs facilitate a smooth reaction to changes that occur within the business environment, including the adoption of new ICTs. This is in contrast to large corporates whose reactions to change might be slow because of the bureaucracy levels that exist in decision-making.

On the other hand, Rahayu and Day (2015), ascertain that there is no link between the size of the organisation and the adoption of ICT in SMEs, and point to the emergence of lower and affordable ICTs. The support of top management is at the heart of literature that discusses the adoption of ICT adoption in SMEs and has been identified in various studies as a critical enabler of ICT adoption (Ghobakhloo & Sai, 2013; Scupola 2010). Khazaei and Hirsch (2015), point out that top management support during ICT adoption is critical because it ensures the availability of resources and ensures internal stakeholder buy-in. The innovativeness of CEOs which alludes to openness to new ideas and new products by management is also critical to ICT adoption. In most SMEs, owners and managers are the main decision-makers and hence their receptiveness to ICT has a key bearing on ICT adoption within the SME (Khazaei & Hirsch, 2015),

Lastly, previous ICT experience is also a critical factor in the organisation for ICT adoption. Various studies confirm that the accumulated ICT knowledge and familiarity and experience with ICT positively facilitates ICT adoption (Rahayu & Day, 2015).

2.9.2.3 Environmental context

The environmental context includes the elements that surround an organisation, which are sponsors, suppliers, shareholders, the government, employees, competitors and the community. These factors have the ability to influence an organisation's need to adopt an innovation, including its ability to implement and utilise the innovation. The environmental factors can include regulations imposed by the government to enforce compliance or resource allocation, market changes, demand and intensity of competition as well as shareholder investments. These factors have the ability to influence innovation adoption and use (Tornatzky & Fleischer, 1990).

Various studies confirm that the environment in which an SME operates signifies a primary stimulus ICT adoption, as SMEs respond to changes in the external environment (Haller & Siedschlag, 2011; Ramdani & Kawalek, 2007; Rahayu & Day, 2015). Various environment-related factors have been highlighted as critical to ICT adoption in SMEs and these include the type of industry, competitive pressure, the scope of the market, external ICT support and pressure from customers.

One of the key incentives that drive organisations to adopt ICT is competitive pressure. According to Haller and Siedschlag (2011), SMEs are likely to adopt ICT as they respond to market competition as this will enable them to improve their performance and their rate of survival.

According to Ramdani and Kawalek (2007), the type of industry is a critical ICT adoption factor. SMEs that operate in various business environments have different needs which also include ICT adoption needs (Ramdani & Kawalek, 2007; Thong, 2011). Ramdani and Kawalek (2007), discovered that there are clear ICT adoption variances between SMEs operating in the manufacturing, retail and services sectors. The scope of the market is another key environmental factor suggested in the adoption of ICT literature. The market scope is outlined as "the horizontal extent of a firm's operations" (Thong, 2011:258). SMEs with a wider market scope are more likely to adopt ICT than SMEs with a narrow market scope.

External ICT support has also been identified in various studies as a key ICT adoption environmental factor. As indicated in previous sections, SMEs lack sufficient ICT skills to adopt and use ICTs. The enhanced sophistication of ICT leads to an enhanced need for external support for SMEs (Haller & Siedschlag, 2011).

The TOE model has a strong theoretical background with a consistent practical support and is very applicable to a study that seeks to develop an ICT adoption framework. The model has been utilised in various studies to identify and understand the factors that affect technology adoption in various organisations. Hence the TOE will also be a critical tool for this study in shedding light on how Zimbabwean SMEs adopt ICT.

The technology, organisation and environment elements highlighted in this model will also be key in identifying constructs that will be part of the ICT adoption framework. The drivers of adoption of the TOE model are also consistent with those from the DOI

model, emphasising on internal, external and individual characteristics. The environment aspect from the TOE theory will also aid in facilitating the development of a comprehensive ICT adoption framework for Zimbabwean SMEs.

2.9.3 The Unified Theory of Acceptance and Use of Technology (UTAUT) model

The UTAUT is the most popular model in the technology acceptance field as it synthesises perspectives from top technology acceptance models. The basis of the UTAUT model relies upon and has significant excerpts taken from the Technology Acceptance Model (TAM). In order to shed more light and understanding on the issue of ICT adoption and utilisation, Venkatesh, Morris, Davis and Davis (2003), proposed an all-inclusive model, the UTAUT model. The model encompasses eight different models of ICT adoption which include the Motivational Model, Theory of Reasoned Action, Social Cognitive Theory, Technology Acceptance Model, Utilisation Theory, Theory of Planned Behaviour, Model of Personal Computer, Innovation Diffusion Theory and Combined.
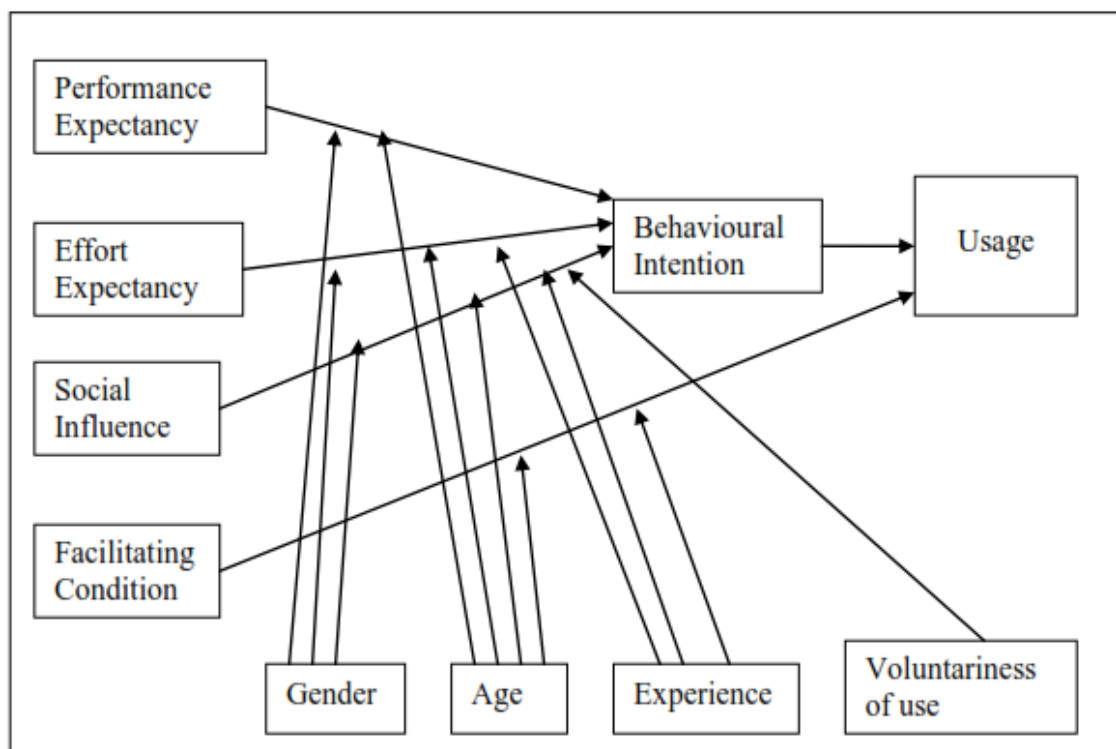
Figure 7 The UTAUT Model (Venkatesh *et al.,* 2003)

The model is built on four key constructs, which are effort expectancy, social influence, performance expectancy and facilitating conditions and attempts to explain parts

played by individual differences in influencing technology adoption (Venkatesh *et al.*, 2003). Recently, the model has become one of the most cited in user acceptance studies and has accounted for 70% of technology user acceptance explanations (Venkatesh *et al.*, 2003). The key relationship moderators of the UTAUT model include gender, age, experience and voluntariness of use (Venkatesh *et al.*, 2003).

1. Performance expectancy (PE), is the extent to which an individual strongly feels that utilising the system will help in attaining a gain in the performance of a job. This is the strongest adoption predictor and is derived from the relative advantage, job fit, usefulness, expected results and external motivation. This construct relates to aspects of system usefulness on the job, how the technology facilitates quicker accomplishment of tasks, productivity and associated appraisal benefits (Venkatesh *et al.*, 2003).

2. Effort Expectancy (EE), is the extent to which the use of the system is effortless. Ease of use is key in influencing perceptions of usefulness of an innovation and is significant in both mandatory and voluntary perspectives. Complexity of the technology also plays a key role in this construct and is often moderated by experience, age and gender. Surveys related to this construct will reveal issues of clarity and apprehension of the technology and the acquisition and development of skills relevant to the new system (Venkatesh *et al.*, 2003).

3. Social Influence (SI), is the degree to which an individual observes the importance of how others believe he or she should use the new system. This construct takes into consideration how colleagues influence adoption behaviour and how executive support is available during adoption and implementation of a new system (Venkatesh *et al.*, 2003).

4. Facilitating Conditions (FC), is the extent to which an individual believes that the support for the use of a system emanates from the existing organisational and technical infrastructure. The construct highlights the availability of resources and knowledge that facilitates the use of a new system and its compatibility with existing systems (Venkatesh *et al.*, 2003).

The UTAUT model will facilitate this research as it seeks to draw relationships between various variables and factors of ICT adoption in Zimbabwean SMEs. Use of the model

will reveal if the degree to which the alleged usefulness and purpose, conforms to gender and age. The UTAUT model will also facilitate the identification of the main construct that will build the ICT adoption framework.

These identified constructs will be linked to and verified using the UTAUT model and we will be able to establish key guidelines that will play a major role in influencing ICT use behaviour in Zimbabwean SMEs. Although UTAUT provides great promise to enhance this study of ICT adoption in Zimbabwean SMEs, the initial UTUAT study was based on large companies. The model will assist the researcher as it provides an instrument that can be used to assess the success of technology introductions and reveal the drivers of adoption.

2.10 Tentative ICT adoption framework

Insights from the literature review section and the analysis of the selected models of ICT adoption highlight key constructs and building blocks that are critical for effective ICT adoption and use in Zimbabwean SMEs. These constructs are highlighted in the diagram below that presents an initial tentative ICT adoption framework for Zimbabwean SMEs. The facilitating elements or catalysts include government support and the three adoption models, namely DOI, TOE and UTAUT.

Individual Factors
SME Owner/Manager ICT perception *(Stockdale & Standing, 2015)*
Inferiority Complex *(Syed & Noor, 2009).*
Education Level *(Sarosa & Zowghi, 2003)*
Level of ICT Knowledge *(Abor & Quartey, 2010).*
SME manager experience *(Olatokun, 2011).*
Age and gender of organisational members *(Ongori & Migiro, 2011).*
Organisation Factors (TOE)
Top management support and skill *(Singh, 2010).*
Security, Trust, and Privacy *(Bharati & Chaudhury, 2015).*
Finances *(Mutula & Van Brakel, 2007).*
ICT information access *(Duncombe & Heeks, 2013).*
Size of the organisation *(Thong, 2011)*
Guidance *(Zhelyazkov, 2012)*
Resource management *(Ongori & Migiro, 2011).*
Perceived advantages of ICT *(Chibelushi & Costello, 2012)*
ICT training *(Kabanda, 2014).*
Organisation culture *(Avgerou, 2013)*
Technological Factors (TOE)
Internet accessibility *(Molla & Licker, 2005).*
ICT complexity *(Forman, 2015).*
ICT strategies *(Jennex & Amoroso, 2004)*
Environmental Factors (TOE)
Government role *(Scupola, 2010).*
Value/Supply chain business partners *(Parker & Castleman, 2009)*
Business environment culture *(Scupola, 2010).*
Infrastructure *(Kapurubandara, 2009)*
Macroeconomic policies *(Martinsons, 2008)*

DOI

Innovation

Communication channels

Time

Social system

GOVERNMENT SUPPORT

UTAUT

Facilitating conditions

Social Influence

Effort Expectancy

Perceived ease of use

ADOPTION OF BASIC & SOPHISTICATED ICT

EFFECTIVE UTILISATION OF ICT

Figure 8 Preliminary ICT adoption Framework

2.11 Conclusion

This chapter has identified various literature based on aspects related to SMEs and ICT adoption and hence defining the scope of the research. The literature pointed out the critical role of SMEs in the development of global economies including Zimbabwe. The reviewed literature also highlighted that a significant percentage of organisations in Zimbabwe are SMEs. Likewise, ICT was also noted as a key driver of processes in most SMEs. Characteristics and the critical role of SMEs in different countries, including Zimbabwe, have been highlighted.

The reviewed literature also pointed out that ICT adoption and viable usage of ICT ought to be considered by SMEs in Zimbabwe since ICT can facilitate their survival. The chapter highlighted that SMEs are the main impetus behind Zimbabwe's economic improvement and hence it is critical for these organisations to embrace and adequately use ICT. Factors that include management support, ICT skills, financial availability and government support have been featured as conceivable components influencing the selection and appropriate use of ICT applications by SMEs.

CHAPTER THREE: RESEARCH METHOD

3.1 Introduction

This chapter highlights and discusses the research methodology employed for this study, including the empirical techniques applied and the philosophical assumptions underpinning this study. The chapter also discusses and justifies the Design Science Research (DSR), approach which was chosen to discover and identify key framework constructs of ICT adoption and use in Zimbabwean SMEs.

This DSR method is relevant and significant for this study because currently, research on ICT adoption in SMEs in developing countries relies on theory-driven descriptive and explanatory knowledge, whereas DSR focuses on practical and solution-oriented knowledge where results are used to design solutions and develop new knowledge (Voordijk, 2009).

3.2 The Design Science Research approach

A research approach is critical for any research as it expedites knowledge creation and facilitates the systematic investigation of the issues under study (Bryman, 2004). The key objective of this study is to develop an implementable ICT adoption framework for SMEs which is a practical goal that explores and takes into consideration matters that relate to technology, people and context. The nature of this inquiry is multidisciplinary and will draw from various scientific paradigms to facilitate the realisation of the study goals.

The DSR approach is an all-encompassing method that is often employed to solve different problems (Peffers, Tuunanen, Rothenberger & Chatterjee, 2008). Anderson, Donnellan and Hevner (2011), also point out that with the DSR method, identified constructs are often actors in the framework in which they are situated. McKay and Marshall (2010), describe design science as a combination of various paradigms that take into consideration the interpretivist, positivism and critical theory views.

The DSR method is a means of creating innovative and unique solutions that are relevant to the issues under study (Lukka, 2003). He goes on to point out that the DSR perspective is based on the development of relevant scientific knowledge that aids in

the design of solution-oriented frameworks. The key characteristics of the DSR approach include its prescriptive nature for design solutions, its real-world problem focus and problem-solving motivation, its implementation drive for developed constructs and its ability to link theoretical knowledge and practical applicability (Aken, 2004).

Also known as the science of the artificial, the DSR perspective exploits key natural science claims in developing designs that meet certain objectives (March & Smith, 1995). The core process of the DSR method involves creating an awareness of the problem, developing and evaluating the constructs and finally building the relevant theory (Anderson *et al.*, 2011).

3.3 Design Science approach to framework development

Originally the DSR approach was developed as a problem-solving tool in the fields of computer science and engineering, but today it's a universal method that applies in the medical, construction, mechanical and even biotechnology fields (Gregor, 2006). It has facilitated collaboration between researchers and the evolving constructs (Cross, 2007). Anderson *et al.* (2011), initially identified two main DSR activities, with construct development being the first activity and the evaluation and justification of those constructs being the second activity. They proposed three design science cycles are indicated in the table below.

Cycle	Description
Relevance Cycle	The link between the problem environment and design science through field testing.
Design Cycle	Involves construct development and evaluation.
Rigor Cycle	The link between knowledge base development and design science.

Table 5 Design Science *Cycles (Anderson et al., 2011)*

Anderson *et al.* (2011), also outlined the following seven IS practical aspects of design science:

- develop a construct that addresses the problem at hand;
- confirm the relevance of the problem to organisation or business;

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- appraise the design significance and value in addressing the problem and need at hand;
- ensure addition is made to the academic and practical body of knowledge through the development and evaluation process of the new construct;
- select the best-suited artefact that ensures the desired outcome; and
- communicate and present the completed design to stakeholders.

3.3.1 Hevner's framework using DSR cycles
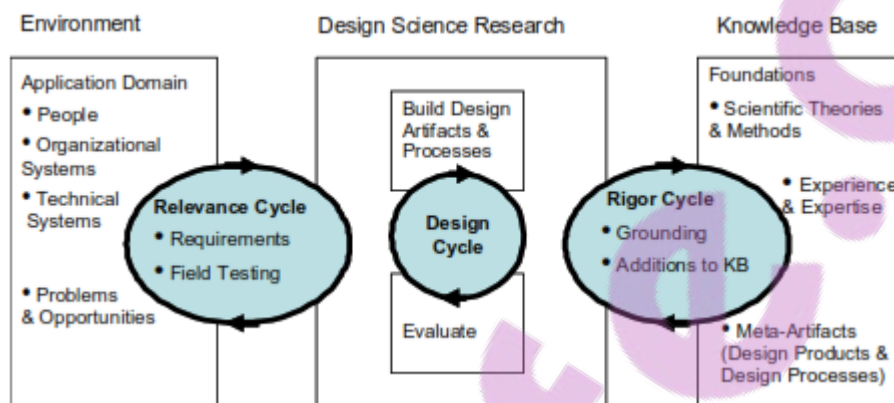
Figure 9 Hevner's framework using DSR cycles (Hevner, 2007)

According to Hevner (2007), it is essential for any DSR study to clearly outline the elements that constitute the three cycles proposed by Anderson *et al.* (2011). He goes on to comprehensively outline the meanings of each cycle under the context of the environment, design science research and knowledge base. Each cycle is then aligned to how it applies to this study.

The Relevance Cycle. DSR is driven by the need to enhance the environment through the process of discovering and building innovative and new artefacts (Hevner, 2007). The initial stage of a DSR process involves the identification of issues within an application environment which consists of organisational systems, people and technical systems. Therefore, according to Hevner (2007), the relevance cycle is the key DSR initiator that provides the study's application context and provides the research problem and outlines the criteria to be utilised in evaluating the results of the research. The research findings would have to be brought back to the environment to asses and validate the findings application and relevance.

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The relevance cycle for this study included the definition of the research problem which was outlined in Chapter One, including the definition of the research environment scope which involves the Zimbabwean SME sector. The relevance cycle was also revealed through the validation iteration that concerned the assessment of the applicability of the ICT adoption framework in the Zimbabwean SME sector.

Rigor Cycle. Hevner (2007), points out that the rigour cycle ensures the research's innovation by highlighting previous knowledge. He adds that it is critical for researchers to review literature on past studies in order to ensure that the developed designs are comprehensive research contributions. The rigour cycles distinguishes IS as design science from the general process of building IT artefacts. Hevner (2007), also adds that the rigour cycle constitutes a researcher's ability to select and apply appropriate theories and methods to develop and validate artefacts.

The rigour cycle for this research is defined by the review of literature in Chapter Two and the validation process in Chapter Six. The review of literature was utilised to assess the findings of the research outlined in Chapter Four. The validation process was also used to determine the relevance and applicability of the framework constructs.

Design cycle. Hevner (2007), points out that the heart of any DSR study is the design cycle, as the activities of this cycle rapidly iterate between the definition of an artefact, its assessment and feedback that further refines the design. The cycle generates alternatives for the design and assesses the alternatives against what is required. These requirements are obtained from the relevance cycle with the rigour cycle providing the methods, evaluation theories and design. Hence the design cycle is dependent on the relevance and rigour cycle as its refinement is dependent on the requirements provided and the quality of evaluation.

In this study, the design cycle is defined by the design and construction of the final SME ICT adoption framework based on the requirements and validation artefacts from the rigour and relevance cycle. The quality of the framework was highly dependent on the outputs of the relevance and rigour cycle.

The above guidelines highlighted one of the main advantages of the DSR approach, which lies in its ability to intertwine construct research, evaluation and design. The lines between design and research become blurred with the DSR method, as it adds

more value to academia and practise (Anderson *et al.*, 2011). Fundamentally, DSR facilitates the true valuation of artefacts and designs through the identification of their benefits in specific situations (Hickman, 1998). This is one of the main reasons why the development of an implementable framework for ICT adoption in SMEs is inclined towards the DSR method, as it will effectively lead to design solutions to the social-technical problems of ICT adoption in Zimbabwean SMEs.

3.4 The DSR philosophical grounding

Philosophy is a study that focuses on the methods of creation and regulation of knowledge (Partington, 2002). The four key principles of philosophy include epistemology, ethics, metaphysics and logic (Annas, 2000). Through abstract processes and the analysis of various sense impressions and interactions, knowledge is developed, classified and labelled and linked to form a comprehensive system of explanation (Partington, 2002).

After validation, knowledge is then classified under one of the main philosophical approaches, which include interpretivist, realism, positivism, phenomenology, critical theory and hermeneutics (Partington, 2002).The investigated knowledge and the researcher's view of the development of that knowledge often influence the research philosophy (Klein & Myers, 1999). According to Klein and Myers (1999), the understanding of philosophical paradigms is key to any research because it facilitates the definition and identification of the research design, including the inherent assumptions and how it fits the intended methodology.

The DSR approach is a multi-paradigmatic method whose perspective is that of a single stable reality which will often be transformed as artefacts develop, synonymous with both the positivist and interpretivist view (Vaishnavi & Kuechler, 2014). They go on to add that the approach allows for the effective study of a phenomenon where the researcher remains independent of the research context. The DSR approach results in the development of knowledge through creation, instead of participation or observation, synonymous with interpretivist and positivist respectively (Vaishnavi & Kuechler, 2014). This research will utilise the DSR philosophical stance in developing key constructs for the ICT adoption framework. The table below is a comparison

between the DSR philosophy and two of the most commonly used philosophies in research, the interpretivist and positivist views.

Research Philosophy			
Basic Belief	**Positivist**	**Interpretivist**	**DSR**
Ontology	A single reality Knowable, Probabilistic	Multiple realities, socially constructed	Multiple, contextually situated alternative world-states Socio-technologically enabled
Epistemology	Objective; dispassionate, Detached observer of truth	Subjective (i.e., values and knowledge emerge from the researcher-participant interaction)	Knowing through making: objectively constrained construction within a context Iterative circumscription reveals meaning
Axiology: what is value	Truth: universal and beautiful; prediction	Understanding: situated and description	Control; creation; progress (i.e., improvement); understanding

Table 6 DSR Philosophical Comparison (Vaishnavi & Kuechler, 2014)

The research on factors that affect ICT adoption in Zimbabwean SMEs includes a study of various topics which will result in different extracts from a diverse pool of scientific disciplines enabling a multidisciplinary characteristic of ICT adoption in SMEs (Voordijk, 2009).

Currently, research on ICT adoption in SMEs in developing countries is mainly in the form of explanatory and descriptive knowledge driven by theory and with the objective of only understanding the social context of the phenomenon (Aken, 2005). The DSR paradigm view will aim at not only understanding the social context but to also develop solution-oriented and prescriptive knowledge in designing a framework that will be relevant to the context of ICT adoption in Zimbabwean SMEs.

3.5 The Design Science Research process

The DSR process is mainly a five-step progression that involves the development, justification and evaluation of relevant constructs (Bider, Johannesson & Perjons, 2012). The process steps include problem awareness, suggestion, development, appraisal or evaluation and communication. Bider *et al.* (2012), point out that each step of the process relies on the output from the previous step. The main outputs of design science are constructs, models and methods or instantiations.

Bider *et al.* (2012), also point out the iterative nature of the DSR process where knowledge flows from one process stage to the other. Over time, a number of DSR

processes have emerged with various features. This study focused on the DSR process that included features developed by Peffers *et al.* (2007), and Bider *et al.* (2012). The figure below indicates the general DSR process.
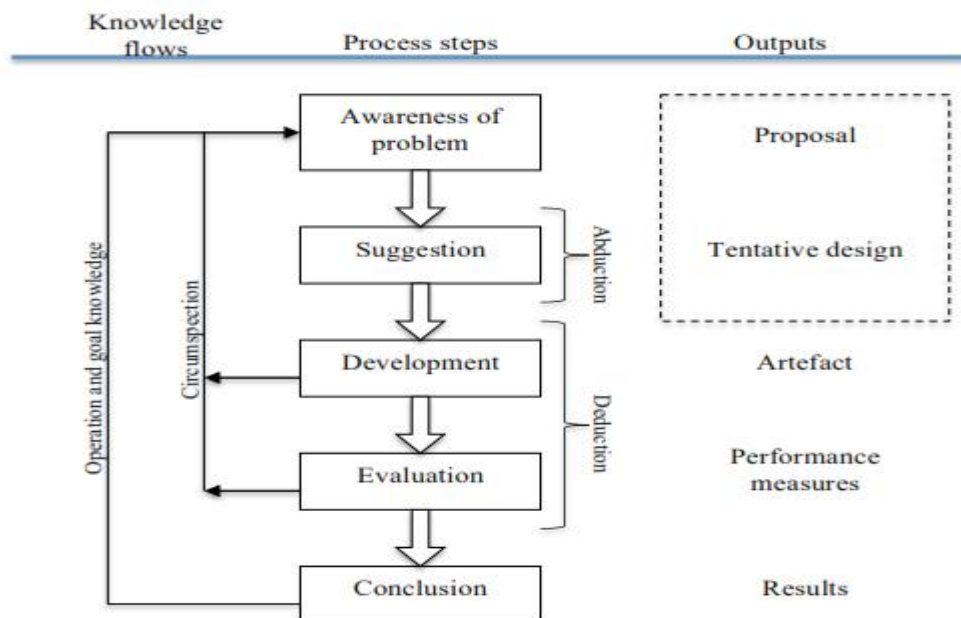
Figure 10 Generic design science research process (Peffers *et al.*, 2007)

3.6 Research strategy and design

The research strategy outlined the researcher's plan of action on how to answer the research questions. Often referred to as the research design, the strategy is a logical procedural plan comprising a set of questions leading to conclusions and answers to the questions (Yin, 2003). The structure of the research is directly related to the research strategy, which dictates the overall research rationale and includes the population sample, the role of the researcher, site choice, data collection and analysis tools and the plan of management (Myers, 2009).

The strategy also includes measurement tools employed to validate the effectiveness of the techniques employed (Saunders *et al.*, 2007). According to Saunders *et al.* (2007), the main elements of the strategy are case study, ethnography, survey, experiment, grounded theory, action research and archival research. This research employed the case study approach and the following section contains the application of this strategy to this study and how it relates to the DSR process.

3.7 The DSR approach applied in this research

Of the various DSR methodologies proposed in a study by Hevner & Chatterjee (2010) and Vaishnavi & Kuechler (2008), the approach that was utilised followed the following steps (a) identify problem; (b) outline solution objectives; (c) design and development; (d) demonstration; (e) evaluation; and (f) communication. According to Gregor and Hevner (2013), this approach facilitates the development of a comprehensive synthesised model that builds on other approaches. The approach was also compatible with the research's underlying ontological view, which outlined a pluralist form of realism. The applied approach enables distinctions to be made between artefact instantiations, knowledge abstract, and the subjective views and experiences of designers and users. Figure 11 below illustrates the DSR process steps and how they were applied to this study
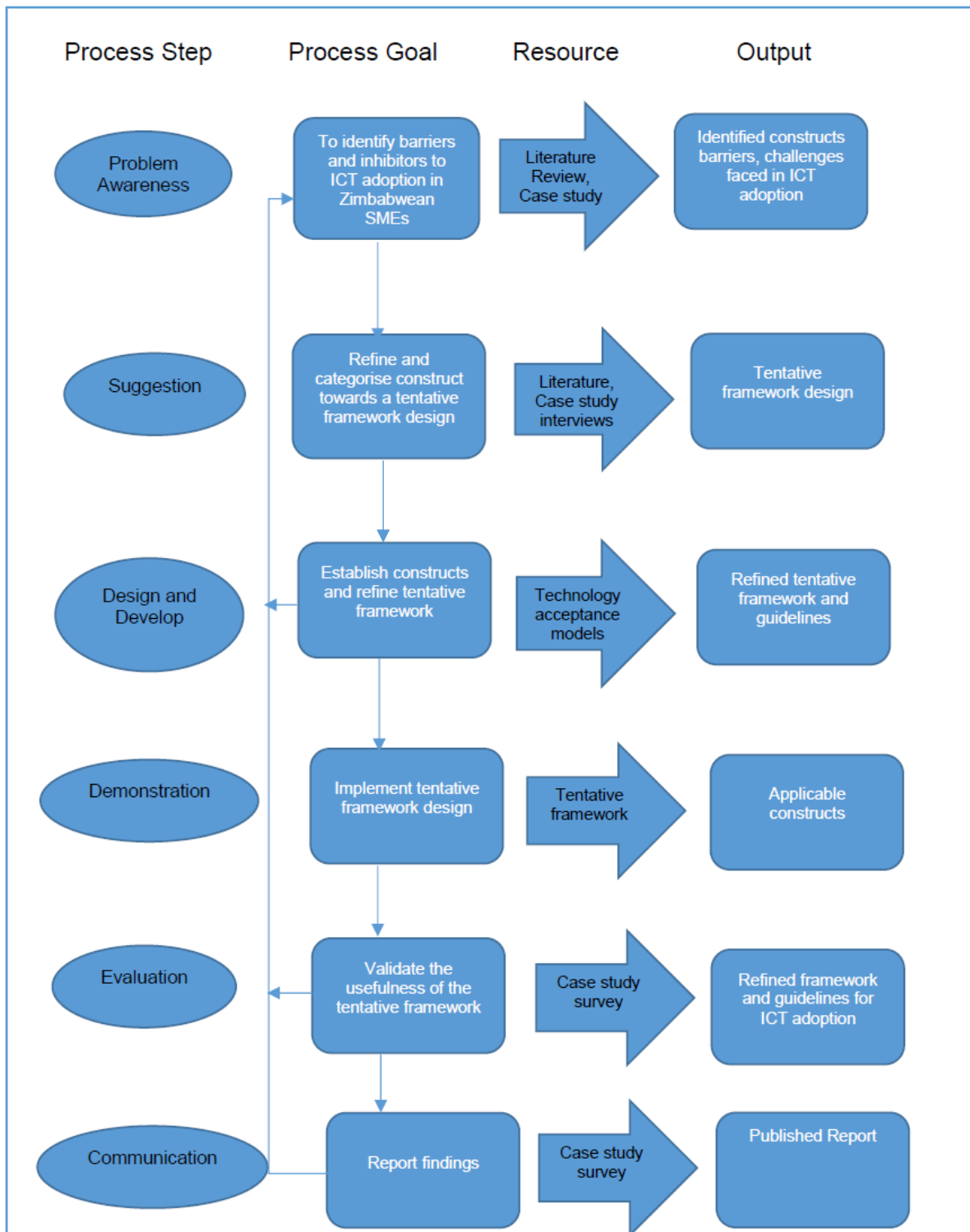
Figure 11 Design Science Research Process

3.7.1 Problem awareness

This critical step entailed the analysis, examination and exploration of the research problem, which facilitated the solution justification and evaluation. The objective of this step was to ensure that the researcher understood the problem at hand and aided in highlighting practical artefacts that were part of the final framework. This step also addressed this research's second objective:

- *To identify ICT adoption barriers in Zimbabwean SMEs.*

The key resources for this step were the literature review and data collected from the main research strategy, which for this study was the case study strategy. Literature review facilitated this step as it highlighted relevant variables to the topic, identified what had already been accomplished in the same field and what needed to be done, highlighting new perspectives and key practical constructs and ideas. Literature reviewed and case study interviews facilitated the exploration of the key constructs that affect ICT adoption and use in Zimbabwean SMEs and semi-structured interviews within a case study strategy, were applied to facilitate this study.

3.7.1.1 Case study strategy

Case studies are a means of acquiring an in-depth understanding and outlook of processes as they occur within organisations. A case study research is a comprehensive and theoretical investigation that provides an analysis of process and context from contextual data gathered over a period of time. Case studies are often employed when building new theories and exploring social behaviours. Tellis (1997), also ascertains that case studies are ideal for an in-depth and holistic analysis and investigation of participants' views, thoughts and behaviour in organisations. The main data sources for a case study strategy are face-to-face interviews, documents and observation (Yin, 2009). The strategy is suitable for this research as it will allow for a more personal insight by the researcher into the relationships, communities and procedures within an organisation.

Using a non-probability purposeful sampling, 12 cases were handpicked by the researcher from the population sample which included 5 major cities of Zimbabwe; Harare, Bulawayo, Masvingo, Mutare and Gweru. The population sample was obtained from an SME directory acquired from the offices of the SME association of

Zimbabwe in Harare. The selection criterion for the handpicked SMEs included, industry, location and size. This was done because the use of a number of cases has a value-addition component as the cross-case scrutiny allows for richer and more comprehensive theory building. The researcher also made use of a case study protocol to facilitate the investigation and included company document analysis, observations and a minimum of 3 interviews per SME with owners, supervisors, managers, administrators and other employees.

3.7.1.2 Pilot study

In order to validate the research methodology, a pilot study was run with 3 handpicked SMEs from Bulawayo and Harare so that the researcher could gauge the sampling frame, assess participant response level, familiarise with the research environment, estimate duration and costs and test the research strategy. The owners of the three SMEs were interviewed alongside the managers of the three organisations.

In this pilot study, the participants found the instructions to be clear and easy however one participant indicated that one or two of the questions were difficult to answer. Two of the participants also were concerned about the length of the interview and suggested a quicker review of the research introduction to shorten the interview time. Hence, after reviewing the feedback certain questions were simplified and the researcher shortened the time spend on the research introduction.

3.7.1.3 Time horizons

This research took on a cross-sectional approach rather than longitudinal because the research was planned and predestined. The researcher had a limited time period to collect data for the samples selected.

3.7.1.4 Data collection instruments

Semi-structured Interview. This research employed semi-structured interviews as the main data collection tool. Semi-structured interviews were conducted with 12 SMEs in Zimbabwe between June 2017 and July 2017. An interview protocol was utilised as a key guide for the interviews. The interview guide facilitated the best use

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of time during the interviews. The interviews ensured a comprehensive and in-depth analysis of the various perspectives and views of the participants. The tool was flexible and encouraged free-flowing dialogue which encouraged participants to freely express their opinions and feelings. The interview protocol that was utilised for this study is outlined in Appendix A.

The interviews commenced with formal introductions by the researcher and the clarification of the research outline and objectives. The first set of questions related to the background details of the selected participants including their organisations. Questions also enquired the software application types being utilised in the SMEs. Part of the interview protocol included questions that relate to ICT adoption and use, including the benefits of ICT and the role of the government so as to obtain the participants' perception on the extent to which various elements had on the effective use and adoption of ICT within their organisations.

Likewise, questions relating to government subsidies, policies and regulations were asked in order to determine the extent to which the respondents understood the role of the government in ICT adoption initiatives within their SMEs. The nature of the interview questions was open-ended which offered participants the opportunity to give their perceptions in their own terms. The study respondents were constantly encouraged to elaborate on their responses and include examples where possible. The open-ended nature of the questions not only enabled the respondents to freely express their views but also allowed the researcher to seek further clarification and explanation of answers.

The average duration of the interviews was 45 minutes with the shortest interview being 20 minutes and the longest being 50 minutes. Interviews were conducted in both Shona and English. The selected respondents were allowed adequate uninterrupted time to respond to the questions. As each interview drew to a close the researcher would initiate an open discussion which allowed the participants to add comments and ask questions. In total 36, Interviews were conducted with employees, managers, supervisors, owners, secretaries, functional officers and administrative personnel. This was done to ensure a broader perspective of the study and ensure data triangulation.

The interviews were recorded using a digital recorder and were transcribed soon after. All participants indicated their willingness to participate in the study hence the recording of the interviews was not a challenge. Transcribing the interviews was done soon after each SME whilst the interview was still fresh in the researcher's mind. This allowed the clarification of the acquired data to select the relevant data for the study. Summaries of transcribed data were produced and delivered to the SMEs for accuracy and interpretation checks. This facilitated bias control and production of reliable data, as outlined by Saunders *et al.* (2009).

Observation. Observation also was a key tool not only during the interviews but also through watching and listening to participants as they went about their daily procedures and processes in SMEs. Field notes were noted and related to the manner in which the SME owners dealt with clients and employees.

Documents. Documents of some of the SMEs were also utilised to reinforce the interview data. Documentation facilitated the comprehension of SME backgrounds including the various roles within the organisations and workflows within the SMEs. In addition, documents were utilised to confirm the data received during the interviews. The SME document review allowed the researcher to probe further and confirm details, hence avoiding any contradictions. Documents reviewed included administrative documents, newspaper articles, company memos, progress reports and meeting minutes. The documents were reviewed bearing in mind the objective of the study. This was accomplished through reading the documents in order to comprehend their focus.

3.7.1.5 Data analysis
Data analysis is the process of structuring and putting meaning and order to the data collected (Marks & Yardley, 2010). The main analysis tool employed for this study was thematic.

Thematic analysis. The collected data were analysed using thematic analysis. According to several researchers (Crabtree & Miller, 1999; Miles & Hubeman, 1994; Waring & Wainwright, 2008), it is also known as template analysis. Thematic analysis outlines a model that encompasses the richness of data and also facilitates the organisation of the collected data into a structure (Crabtree & Miller, 1999). Thematic

analysis is a procedure that is synonymous with the translation of qualitative information into quantitative data in qualitative studies (Braun & Clarke, 2006). Braun and Clarke (2006), also point out that thematic analysis is utilised in the identification, analysis and reporting of patterns found in data.

The interviews and case studies were analysed using thematic analysis where the collected data were grouped into different themes to ensure effective analysis. The themes were based mainly on the literature review and from observations made during the study. For this study, a repeated pattern of responses was used to identify the themes. The identification of the study themes was achieved by observing the entire data set and identifying repeated patterns of responses.

According to Ryan and Bernard (2003), the identification of themes is a critical stage that occurs before the analysis of data. Bulmer (1979), points out that the themes are extracted from the review of literature and values of the researcher. According to Holliday (2002), themes are also extracted from what the researcher observes during the collection of data. In this study, the identification of themes was done by looking across the entire data set and extracting a repeated array of responses, as pointed out by Braun and Clarke (2006).

The identified themes for this research included:

- the government role in ICT adoption – The theme identified the role that the government plays in facilitating ICT adoption within the SMEs;
- significance of ICT in the selected ICTs – This theme identified how ICT was significant for the selected SMEs;
- adoption of sophisticated ICTs – The theme highlighted the level of inception of sophisticated ICT tools in SMEs;
- Owner/Manager ICT involvement – This theme facilitated the understanding of the level of involvement of SME owners and managers in ICT initiatives;
- ICT barriers – The theme incorporated all factors limiting ICT adoption; and
- ICT success factors – This theme included all factors that encouraged ICT adoption within the SMEs.

Data reduction. Data reduction included the transcription and coding of the data which aided in sorting, focusing, and organising the primary data.

Data display. Description of each stage was done using a pictorial description of the qualitative data. Charts, networks, lists and graphs were also used to display the qualitative data analysis.

3.7.2 Suggestion

The suggestion process highlighted and recommended a tentative design that addressed the problems identified during the problem awareness step. The main inputs for this step were the constructs identified from literature and case study interviews and the main outputs were practical artefacts that affected ICT adoption allowing for identification of practical solutions to the identified constructs. This step sought to identify the ICT adoption framework constructs and addressed the first research objective:

- *To recommend key strategies that the government can implement to support and improve ICT adoption in SMEs.*

The tentative design also borrowed concepts from the reviewed technology acceptance models which include the UTAUT, TOE and DOI.

3.7.3 Design and development

This design and develop step created and established the construct identified in the suggestion stage. Further development of the tentative design occurred during this step as the desired functionality of the construct was determined. The objective addressed during this step was:

- *To design an implementable framework that will be utilised by the government to enhance ICT adoption in Zimbabwean SMEs.*

The framework that addressed this objective was developed around the three main technology acceptance models featured in the literature review section of this research.

3.7.4 Demonstration

The demonstration stage validated and demonstrated the viability of the proposed framework and also included the analysis and observation of the suitability of the design to the identified problem. This step aimed at fulfilling the following objective:

- *To validate the framework for ICT adoption in Zimbabwean SMEs.*

The step highlighted how the ICT adoption framework was implementable and applicable in Zimbabwean SMEs. A two-day workshop attended by 54 SMEs was used to demonstrate the usefulness of the guidelines presented in the framework. The SMEs selected included those that had been engaged during the problem awareness stage. Open discussions were conducted in small break out groups on the applicability and infusion of tools, policies and procedures proposed by the framework into the SME business processes.

3.7.5 Evaluation

Evaluation tested the usefulness of the proposed design and how well it addressed the problem at hand. This required metrics and quantitative analysis methods. This step aimed at validating the ICT adoption framework in Zimbabwean SMEs. This was achieved through an empirical study that established the usefulness and appropriateness of the framework. This step aimed to fulfil the following objective:

- *To validate the framework for ICT adoption in Zimbabwean SMEs.*

As this was an exploratory research it would only be appropriate to validate the usefulness and effectiveness of this framework with stakeholders in the SME sector. A survey strategy was employed for this process where data were collected using self-administered questionnaires. 54 semi-structured questionnaires were distributed to owners, managers and employees during a two-day workshop conducted in Harare. Data were analysed using content analysis and SPSS 16.0 was employed for the analysis and presentation of the quantitative data. At the end of this step, a decision was made to continue to the communication step.

3.7.6 Communication

The last step is the communication step, where the researcher reported the findings of the study from all the stages of the DSR process. This was done in Chapter Seven of this research report. The table below presents a summary of the DSR process steps, objectives addressed and strategies that were employed.

Process step	Research Goal	Research strategy and method
Problem Awareness	• *To identify ICT adoption barriers in Zimbabwean SMEs*	Literature review Case study- semi-structured interviews (Chapter One, Two & Four)
Suggestion	• *To recommend key strategies that the government can implement to support and improve ICT adoption in SMEs.*	Case Study – Interviews, Observations Literature review (Chapter Two, Four & Five)
Design and Development	• *To design an implementable framework that will be utilised by the government to enhance ICT adoption in Zimbabwean SMEs*	Literature review- Acceptance Models Case study- Interviews (Chapter Two & Five)
Demonstration	• *To validate the framework for ICT adoption in Zimbabwean SMEs*	Workshop Discussion (Chapter Six),
Evaluation	• *To validate the framework for ICT adoption in Zimbabwean SMEs*	Survey – Self-administered questionnaires. (Chapter Six)

Table 7 Design Science Research Process steps summary

3.8 Ethics

The following Ethical procedures were taken into consideration by the researcher.

3.8.1 Informed consent and voluntary participation.

Voluntary participation and informed consent were clearly outlined to the participants noting especially how they could withdraw from the interview if they felt uncomfortable.

3.8.2 Permission

Permission to conduct the study was sought from relevant authorities at various levels in the form of permission letters to ensure alignment with applicable legal frameworks.

3.8.3 Confidentiality and privacy

Participants' information was handled in the utmost confidential manner and names of either individuals or organisations were not to be exploited or disclosed.

3.9 Conclusion

The primary focus of this chapter was the establishment of a robust research methodology. The research mainly employed the DSR approach which was presented with an in-depth explanation of the research method. The choice of the research strategy was mainly based on the case study approach and included the collection of data from 36 SME participants using semi-structured interviews, document analysis and observations. The evaluation process, however, also included a quantitative survey that employed self-administered questionnaires. The chapter also included an indepth discussion of the research method used for the purpose of this research and a justification for the choice of the DSR research mode. The chapter also has highlighted the various data sources that were utilised in the research. The choice of the research strategy was based on the nature of the data. This chapter also discussed the approaches adopted in the research as well as the criteria employed for selecting the cases. The selected companies represented a broad range of industries.

CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter highlights the research findings extracted from the interviews conducted with members of 12 SMEs from Harare, Mutare, Gweru, Bulawayo and Masvingo. The chapter also outlines the thematic analysis approach that was used to analyse the data collected during the semi-structured interviews. Interviews were held with owners, directors, managers, and ordinary employees in these SMEs. The SMEs whose members were interviewed come from 10 distinct industries which include mining, retail, service, legal, manufacturing, agriculture, transport and logistics, education, energy, hospitality, IT and insurance.

4.2 Overview of SMEs interviewed

A total of 12 SMEs participated in this research and a total of 36 SME members were interviewed. For anonymity purposes, SMEs will be assigned alphabetical names and denoted as Company A to L and participants will be identified by the letter of the SME they belong to. For example, participants from SME A will be identified as A1, A2 and A3. Ten industry sectors were represented in the study with four of the SMEs based in the rural areas. The average ICT usage within the SMEs was revealed to be around four years, despite some SMEs having been in operation for over 10 years. Below is the map of Zimbabwe indicating the locations of the participating SMEs.

SME Location -
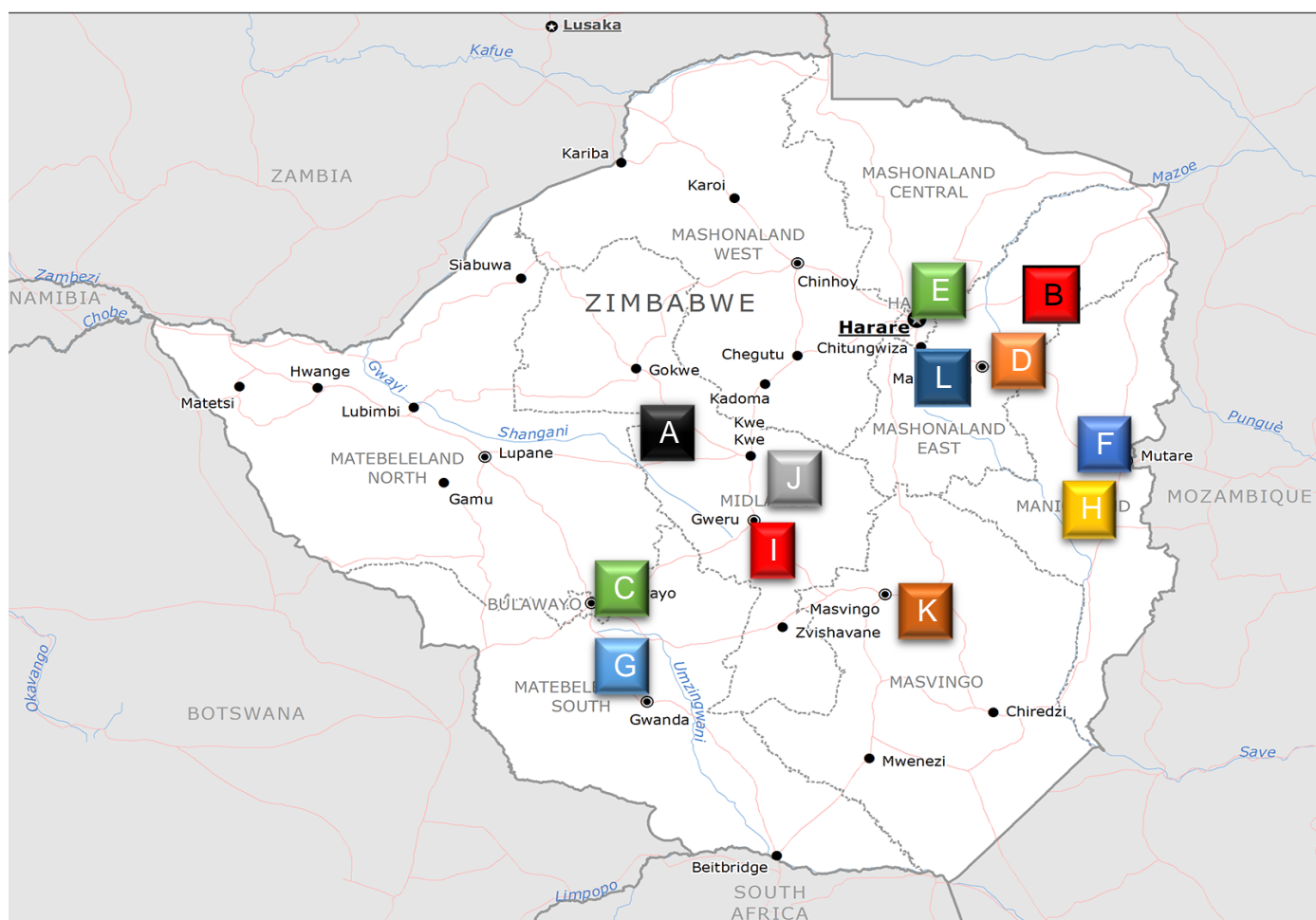
Figure 12 Locations of participating SMEs

Below is a table highlighting some of the statistical characteristics of the SMEs.

SME	Industry	No of Employees	Years of Operation	Location (Rural/Urban)	Number of years using ICT
A	Mining	7	2	Rural	2
B	Retail	5	7	Rural	3
C	Hospitality	15	4	Urban	1
D	Transport	13	11	Urban	5
E	Legal	4	1	Urban	1
F	Insurance	7	5	Urban	4
G	Manufacturing	19	12	Rural	5
H	Agricultural	17	6	Rural	1

I	Manufacturing	20	3	Semi Urban	3
J	Education	15	2	Urban	1
K	Retail	10	8	Urban	2
L	Technology	2	2	Urban	2

Table 8 SME Characteristics

The classification of the employee ICT levels adopted for this study are highlighted below:

4.2.1 SME A

SME A is a small gold mining enterprise in the rural areas 90 kilometres outside the city of Gweru. The company has been in operation since January 2015 and has seven employees. The establishment is family owned by two brothers who own the mining claim at the helm of the small SME.

Their operation produces an average of 7 to 8 yards of material per day. Their initial costs for the vibratory screener, backhoe, water tanks, tubs, and long tom were around R60 000. All of this equipment is second hand and in need of constant maintenance hence the mine has an on-site mechanic. The processed gold is sold to legal vendors in the city of Gweru and the establishment has been making a steady monthly turnover of just under R80 000.00 per month.

A small wooden cabin onsite serves as the administration office. The office is manned by one employee who does all the human resources, accounting, logistics and administration functions. The office is equipped with a printer and single desktop computer that runs Windows XP and only has Office 2007. However, the printer has been down for over three months awaiting repairs. Stacks of paper are also visible in the office. A 24kVA diesel generator is the main source of power for the small mine and barely supports the mining equipment. The mine has a supervisor and five general workers. The owners are looking to acquire three more claims within the next year in order to expand their operations.

Number of employees working on ICT	1
Average Employee ICT level	Beginner

4.2.2 SME B

SME B is a grocery shop in the remote areas of Shamva about 60 kilometres outside of Harare. The shop has been operating for just over seven years and mainly sells foodstuffs, stationery and selected kitchen appliances including pots, plates and cutlery. The shop is connected to the national electricity grid and also has a backup generator on site, since load shedding in the area is a common occurrence. The shop is part of a group of buildings that make up a fairly popular shopping site and bus station for the local community. The shop is family owned and all five workers are relatives of the owner.

The shop building has two storerooms, an office and the main shop area. The shopping area is manned by two people and has one electronic calculator with a receipt dispenser. The office has an HP desktop, an inkjet printer and a dot-matrix printer. The office is manned by the shop manager and an accountant who also performs the procurement and human resource functions. The desktop runs a Windows 7 operating system and is equipped with an antivirus and Microsoft Office 2010. Most work is done in Microsoft Excel and Word.

The storeroom is manned by one person whose main role is to load and offload products from trucks or from the storeroom into the main shop area. The shop has a monthly turnover of R30 800 and the vision of the owners is to become a leading vendor for agriculture oriented goods and appliances including maize seed, fertiliser and ploughs. This is so because the area they serve mainly constitutes peasant farmers.

Number of employees working on ICT	4
Average Employee ICT level	Intermediate

4.2.3 SME C

SME C is a bed and breakfast lodge in the heart of Bulawayo's central business district. The lodge is part of a franchise that is in two other locations namely, Hwange and Kwekwe. The location in Bulawayo is a two storey building equipped with nine standard double rooms, two family units, a swimming pool and a small restaurant. The lodge has two shift managers who also man the front desk. The reception area includes an HP desktop with a manual booking system that uses Microsoft Excel. The

Excel Workbook is also used to capture client details. The desktop machine also has a Canon printer connected to it.

The client contact numbers are also imported as a CSV document into an SMS application that management uses to send out messages to clients on upcoming promotions. After booking proceedings, guests receive the keys to their room. The lodge has one general worker who takes care of the lodge grounds and as well as the pool.

A small restaurant occupies part of the ground floor and offers breakfast, lunch and dinner for the lodge guests. The restaurant is manned by the head chef and a waitress. The rest of the nine employees are responsible for the upkeep of the hotel rooms including washing and cleaning of linen and floors. The lodge has a monthly turnover of around R95 000 and has the vision of becoming the most sought after accommodation entity within the city.

Number of employees working on ICT	2
Average Employee ICT level	Intermediate

4.2.4 SME D

SME D is a transport and logistics company that is based in the southern suburbs of the city of Harare. The small enterprise is owned by two brothers who are also very hands-on in the enterprises. The company owns three Scania heavy haulage vehicles that collect goods between the Democratic Republic of Congo and South Africa. Their vision is to dominate the transport and logistics industry in the country and to be the logistics company of choice.

The business premises are located on four acres of land with a vehicle workshop being the main centrepiece. The company has six full-time drivers and three mechanics. The workshop also includes two offices at the back. One of the offices is occupied by one clearing agent and an accountant. The other is an administrative office manned by an administrator and a manager.

The two offices are equipped with a desktop and a printer. A small local area network connects the two offices together for the purposes of sharing files and an internet connection. The two machines are equipped with Microsoft Office 2013 and an

antivirus. The machine in the accountant's office is also equipped with QuickBooks accounting software. The machine in the administrative office is mainly used for human resource purposes and for sending emails to clients.

Number of employees working on ICT	4
Average Employee ICT level	Intermediate

4.2.5 SME E

SME E is a small legal firm in Harare. The entity is owned by two high school friends and has an office located in a suburb about 10km from the central business district. The office is a residential house with four bedrooms. The firm occupies three of the bedrooms which are offices for the two partners and an administrator. The fourth bedroom is occupied by a company that runs a photocopying and printing business. The entrance hall is occupied by the law firm's receptionist. The firm's vision is to open two more offices in Bulawayo and Mutare.

The company mostly handles civil and labour issues involving divorce, domestic violence and unfair dismissals. They serve a wide variety of clients, the majority of whom are based in Harare, although occasionally they do have referrals coming in from surrounding small towns. The firm has been in operation for a year although the partners have been practising in other firms for much longer.

The administrator's office is equipped with a printer and a desktop that runs Windows 7 and is also equipped with Microsoft Office 2010 and an antivirus. The desktop is also connected via a wireless router to an ADSL line that links the entity to the internet. The administrator who also serves as a PA for both lawyers is responsible for keeping records, typing out court- and meeting minutes and handling accounting issues as well. Both partners have laptops that are occasionally used for checking emails. The receptionist arranges appointments and attends to phone calls and walk-in clients.

Number of employees working on ICT	3
Average Employee ICT level	Intermediate

4.2.6 SME F

SME F is an insurance company that is located in the heart of the Mutare CBD. The company has two offices in a five-storey building. The owner is an experienced broker with more than 35 years of experience in the insurance industry. He occupies one of the offices and also handles the company's banking tasks. The other two offices are pool offices occupied by five brokers and a secretary. The secretary also handles accounting, marketing and administrative tasks. The company offers insurance products for car and home insurance. Their clients are both organisations and individuals and they are looking to open an office in the nearby town of Rusape.

The secretary has a desktop that has QuickBooks for accounting and Microsoft Office 2010. She also receives company emails and manages the company's social media page. A Wimax connection provides wireless internet for the three offices. Most operations are still paper-based. The secretary's desktop is connected to an HP inkjet printer, however, most of the company's bulk printing is done at an internet café downstairs. Two of the brokers have personal laptops which are mostly used for personal activities, though, instead of work-related tasks. The company does not have a direct landline and communication is mainly through cell phone calls, WhatsApp and SMS. Promotion of products is through emails and bulk SMS.

Number of employees working on ICT	1
Average Employee ICT level	Intermediate

4.2.7 SME G

SME G is a manufacturing entity in the rural areas 40km south of Bulawayo. The business is housed in a $500m^2$ shed, at a growth-point centre. Their products are mainly fruit and vegetable juices. They have three juice making machines that take in various vegetables and fruits including carrots, beetroot, apples and oranges and produce natural juice. They buy their bottling containers from a manufacturer in Bulawayo and they grow their own vegetables and fruits.

However, they do supplement these raw materials with produce from other farmers who deliver to the manufacturing plant. Most of their products are delivered to various shops in and around Bulawayo. The organisation has 19 individuals of which the bulk

work in the main plant area. Their monthly revenues are in the region of R50 000 and the owner is looking to expand their range of products and expand the business.

The premises have three offices manned by five workers. The first office has two accounting and financial personnel. They have a desktop and a laptop and a Dot Matrix and LaserJet printer. The desktop has Windows 7 and Office 2010 and an Avira antivirus. The second office is a supervisor's/administration office. This office handles the administrative and human resource activities of the organisation. The office is manned by two supervisors and has a laptop that runs Windows 7 and Office 2010. The last office is where the owner sits and is equipped with a laptop and a printer. There is no internet connection on the premises although the owner has a dongle that he connects to his laptop. He uses the laptop for reports and for receiving and sending out emails.

Number of employees working on ICT	5
Average Employee ICT level	Intermediate

4.2.8 SME H

SME H is an agricultural co-operative in Rujeko, a rural dwelling about 50km west of Mutare. The corporative registered as a small enterprise to facilitate buying and selling of inputs as well as for tax purposes. The entity has 17 organisation members. The core of the business is the production of vegetable produce ranging from tomatoes, onions, cabbages, lettuce and potatoes. Most of the work is done by hand although they have an irrigation system in place. The SME has been operating for six years and provides sustainable income for its members.

Until recently, the entity had no ownership of any piece of land. They had been renting a 10-acre estate from the local authority. They managed to raise enough to purchase their own piece of land in 2016 which is 12 acres in size. The land came with a storage shed and an equipment room which has been converted into an office. The office has a desk and a second-hand desktop that is used to record the produce quantities and basic accounting entries. This is done using Microsoft Office 2010. The biggest challenge is that there is no connection to electricity hence the company relies on a small 5kv generator.

Their plans, however, are to purchase a bigger generator and employ an office administrator who will optimise the organisation's administrative and accounting needs.

| Number of employees working on ICT | 1 |
| Average Employee ICT level | Beginner |

4.2.9 SME I

SME I is a manufacturing SME in the peri-urban section of Gweru. The small factory is located 45km out of Gweru and sits on 4000m^2 of land. They manufacture soap products which include regular washing and bathing soaps. The company is a family business and run by a husband, wife and son. The organisation has 20 members with the bulk of the workers working on the plant floor. The factory is divided into two main sections, the manufacturing section and the warehouse section, where dispatch takes place. The company makes an annual gross turnover of R3 million and are looking to set up another operation in Harare. The factory has four offices and a staff canteen. The plant only closes for 6 hours a day and a staff rotation system is in place.

The first office is manned by two finance personnel whose sole mandate is accounting and the production of financial reports. The office has two desktops and two printers. The desktops have Windows 8, Microsoft Office 2013, Pastel and an antivirus. The second office is manned by the human resource officer and an IT and marketing officer. This office has two desktops and an HP server. The server is both an application and storage server. It runs Windows 2012 and houses the core Sage Pastel application. The office has a network box mounted on the wall that contains the network switch from which network cables run to three other offices. Internet connection is via a fibre-line.

The third office is the marketing and procurement office, where all supply chain and customer service issues are attended to. The office has two desktops and a direct landline. The marketing desktop also has a bulk SMS application for sending out bulk SMS's to existing and new potential clients. The fourth office is a management office, where the owners usually sit. There are two laptops in the office and a printer. Factory operations are still manual including packaging and application of labels onto the products.

Number of employees working on ICT	6
Average Employee ICT level	Advanced

4.2.10 SME J

SME J is a small private college that specialises in marketing and finance courses. The college has 15 staff members and has been operating for 2 years. They occupy the second floor of a four-storey building located in the Gweru CBD. Their core business is the training of short courses in finance and marketing. However, they currently only offer certificates of attendance and are in the process of negotiating with certifying bodies to offer competence certificates. They also offer strategy workshops for corporates. Most of their clients are corporates and school leavers. Their monthly gross revenues are in the region of R150 000 and most of the staff is part-time and on contract.

They have three large classrooms, a staff room and two offices. A receptionist mans the reception area and operates a desktop that runs Windows 7 and Microsoft Office 2010.

One of the two offices is manned by two people who perform administrative and finance functions such as e-accounting, marketing and human resource activities. The other office is a management office manned by the owner who also heads the marketing and training department. He has a laptop and a printer and connects to the internet using a wireless 3G Wimax router on his desk. The college is in the process of setting up a computer lab where they hope to be training basic computer skills. They also hope to expand their internal local area network to ensure that all devices are connected to the network.

Number of employees working on ICT	3
Average Employee ICT level	Intermediate

4.2.11 SME K

SME K is a retail supermarket in one of the high-density suburbs of Masvingo. The shop was set up just over eight years ago and has established a considerable niche despite being located close to established franchise supermarkets that are much

bigger in size. The shop is located on the ground floor of a building that also houses a butchery and tailor shop. It offers a wide range of products that include bread, soap and sewing needles. The rent is reasonable, hence the shop offers competitive prices. The shop is owned by a widow who has run it for the past five years after her husband passed away. There are two till operators in the supermarket and four shop assistants. There are two storerooms at the back and two offices.

The shop tills are desktops equipped with a cash drawer and receipt printer. A barcode scanner is used for scanning the goods. The two machines are connected through a cable LAN to a server machine that houses the parent shop application software. The server, which is an ordinary HP desktop, is also used by the two accounting and logistics/procurement personnel in that office. The other office is an administration office where the shop owner sits. The office has two laptops and a printer. Internet connection is through an ADSL router that has both cable and wireless capabilities.

The shop makes around R150 000 monthly and there are no current plans for expansion, although the owner is looking to open a beauty salon in the same building within the coming year.

Number of employees working on ICT	6
Average Employee ICT level	Advanced

4.2.12 SME L

SME L is a small graphic design company that is owned by two college friends. The entity was registered two years ago and is located in a garage at one of the owner's houses in a low-density area in Harare. Both their fathers are silent shareholders. Their services include logo design, product branding, letterheads and portfolios. They also design websites for corporates, including various types of banners. Communication with clients is mostly via email, Skype and cell phone calls. Occasionally SMS and WhatsApp is used. A fibre connection provides internet connection. Fortunately, because of their location, they are not paying business rates for the connection.

Their little office is equipped with an iMac and an HP desktop. They also both own Apple laptops. There are also two printers and two large fans that provide air conditioning. Sharing of resources is through a wireless router that is connected to the fibre line. Their main graphics design software is Corel Draw although the two

desktops are equipped with various design software that includes Photoshop and Xara.

All admin and financial functions are handled by the two owners. Their vision is to expand their operations to a much bigger office space where both of them will have separate offices. They also have a part-time contractor who is responsible for marketing and finance. Currently, their monthly gross revenue is around R50 000.

Number of employees working on ICT	2
Average Employee ICT level	Expert

4.3 Government role in ICT adoption

The conducted interviews with the SMEs allowed the researcher to elicit the participants' perceptions and experiences with regards to the role that the government plays in SME ICT adoption and use. Below are related questions and the responses received from the various participants.

4.3.1 Government ICT help

Most of the participants highlighted that they do not recall or are not aware of any support that the government has offered to facilitate the use and adoption of ICT within their Organisations.

> E1: *"We have not received any help from the government since the conception of this business and we still pay the same internet rates with larger corporates. The government is probably not even aware that they need to assist SMEs with ICT."*

L2 highlighted that the assistance received from the government was often selective with certain SMEs affiliated to a certain political party receiving financial assistance. This would then facilitate the acquisition of ICT equipment.

> A2: "*I am not aware of a government facility that offers assistance for ICT use or adoption".*

It should also be noted that B2, J1, K3 and G1 were quite annoyed with the question evidenced by the abrupt responses given to this question.

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> *B2: "Small businesses like ours in remote locations covert the assistance of the government not only for ICT adoption, but for strategic guidance and how to grow our businesses. This government does not care about small businesses".*

> *G3: "I don't think the government cares enough to assist marginalized small businesses like ours and the issue is we don't even know where to go for help with issues related to ICT. We are constantly highlighting to legislatures, our critical need for help from the government to access financial facilities to help us acquire new equipment".*

The above comments confirm the point raised by Southern and Tilley (2000), who ascertain that the mediation role of the government is a critical catalyst for the advancement of ICT adoption in SMEs. Further responses to the question on government help highlighted that across the country there is no SME needs assessment system in place, where the government can identify the needs of SMEs (including ICT related needs). According to G3, this is the only way the government can effectively help SMEs in adopting ICT.

According to Martinsons (2008), the capacity of SMEs in developing countries to adopt and utilise ICT at cutting edge levels is only enhanced by their government's proactive part in providing the enabling assistance that enhances ICT adoption. The comments above highlight that SMEs in Zimbabwe are not accessing much help from the government, which constrains their capacity to become more tech savvy.

4.3.2 Government ICT policy awareness

On the awareness of government ICT policies, only 3 SMEs highlighted that they had some knowledge of the policies but they could not elaborate the critical elements of the policies.

> E1 – "*Yes I am aware of an ICT policy that only exists on the internet. As an Organisation we are yet to realize its benefits. The government needs to revisit this policy and restructure it with small businesses in mind".*

I3 – "*The ICT policy looks solid on paper. The government however, expects small business to just implement the policies by themselves, because the policy does not outline clear steps of how the objectives are to be executed*".

L2– "*We have a downloaded copy of the policy on our machine and we still await to see how the government will implement its goals. The policy does not show how SMEs can be capacitated to effectively use ICT*".

Syed and Noor (2009), point out that national policies have the potential to negatively or positively impact ICT adoption in organisations as policymakers can coin policies that create an enabling environment that supports and encourages ICT use. The above comments indicate that the ICT policies of the government of Zimbabwe have not had any significance or positive impact on SME ICT use. The bulk of the interviewed participants highlighted that they had no idea such a policy existed.

A2 – "*I am not aware of any ICT related policies that the government has put in place. If the policy is there then no one has brought it to our attention. These things (policies), should be clearly pointed out to small business like ours otherwise we will be left in the dark*".

Participants outlined that the government has not made any effort to bring awareness to the relevant stakeholders of policies that affect SMEs, clearly highlighting that the mandates of the policies have not impacted SMEs. The feeling from most of the interviewed participants is that the government is not particularly interested in driving the ICT agenda as their hands might be full with other national issues. This also confirms the point raised by OECD (2004), that governments in developing nations are usually more concerned with issues of unemployment and poverty eradication.

4.3.3 Government financial subsidies

According to Mutula and Van Brakel (2007), one of the key challenges that prevent advancement in ICT adoption in SMEs is financial capacity; it opens the capacity of the SME to acquire ICT assets for business execution, marketing and delivery of products and services. The interview data highlights that the government should play a key role in the provision of financial subsidies for SMEs.

A3 – "*We were told by the government that if we formalise and register our businesses we would have access to cheap loans and relaxed taxation terms but so far "hapana chachinja" (nothing has changed). Banks are still insisting on collateral security that we don't have. My company has second hand equipment that the bank will not recognise as collateral. The government really needs to step in and help otherwise we will sink. Besides we can't even access our own cash in the banks".*

B1 – *"There are no financial subsidies to access my friend. We heard about the US$90 million facility that the reserve bank availed for SMEs early this year and the minister said that it will be available for registered SMEs. It's been months and we have not been told how to access the facility".*

C1 – "*No. The government has neglected to inform the key stakeholders of the subsidies, which are small businesses, how to access the subsidies because if you ask any small business in this area there are none who know about the subsidies or know how to access them".*

D3 and E1 highlighted that banks are still charging them 30% interest, this is equivalent to what large corporates are being charged. This points to the fact that the financial subsidies which government claims to have in place through ZIMPREST do not have an impact at grassroots level. F3 pointed out that small businesses do not receive any special pricing for ICT equipment and hence currently, there are no subsidies that encourage ICT adoption.

G3 – "*Since conception of this business we have not had any access to any form of government funding or subsidies and we have had to rely on credit terms from our suppliers".*

H1 – "*The truth is that we need the financial subsidies more for business growth than to adopt ICT. We have not been able to access any of those facilities and we desperately need financial assistance from the government in order to survive".*

I2, J3, K1 and L2 also indicated that they had not had any access to government financial subsidies and relied on unconventional means of obtaining funding for their businesses, including borrowing from friends and family. The other key point raised by the participants is the inaccessibility of funds from banks which has made it close to

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impossible to continue with business operations. The above comments are, however, in contrast with one of the stated mandates of ZIMPREST which points out that the government will put in place a credit finance facility that will facilitate the feasibility of SMEs in acquiring unsecured finance at concessionary financing rates. The evidence above indicates that there are no accessible government-related financial subsidies that can facilitate ICT adoption and use for SMEs.

4.3.4 Government support for SME ICT adoption

According to Martinsons (2008), SMEs in any economy require the support of the government in order for them to realise their organisational goals and provide a significant contribution to the nation's economy. The following comments were received from participants on how they perceive the importance of government support in ICT adoption and use in their organisations.

> A1 – "*I believe the support of the government would be crucial especially if it comes through a financial facility that allows our business to access funds we can use to obtain ICT equipment*".

> C3 – "*Government support would be very useful to our efforts to use and adopt ICT. The support should however, be relevant and add value to small businesses*".

> D1 – "*For our company, government support can be useful in a number of ways. Government can start by revising the numerous regulations that constrain small businesses and give us sleepless nights particularly in the transport sector. We are constantly paying for penalties which are depleting our funds and hence we can't even focus on upgrading ICT facilities*".

> G2 – "*Government support is critical for enhancing our ICT efforts because on our own we don't seem to be getting far with ICT. We need the government to effectively partner with us through guidance and provision of resources that will help us to effectively apply ICT to our businesses*".

> H3 – "*The support of the government would be very good for our business. We need financial support for acquisition of ICT equipment and access to training on how we can effectively utilize ICT in a rural agricultural setting*".

I2 – *"I think government support for small business like ours should be through the provision of infrastructure that facilitates ICT use. The government should facilitate the provision of affordable internet and reliable electricity supply which are key to the adoption of ICT"*.

The above comments confirm the environmental context highlighted by Tornatzky and Fleischer (1990), in the TOE model that SME ICT adoption is heavily reliant on a supportive external environment. This includes government support that comes through various forms, including regulations and financial subsidies that facilitate ICT adoption for SMEs.

J2 pointed out that the government should take time to assess how it can effectively support SMEs by conducting workshops or informal meetings. Despite the articulation over and again of government support for SME ICT adoption in different policy reports (Nyoni, 2002), the evidence from the interview data highlights a different picture - practical government support for ICT use and adoption SMEs has not been present.

4.3.5 Government laws, policies and regulations

According to Scupola (2003), government SME support should come through practical and implementable policies that facilitate SME operations in the country, institutional support for technological assistance and finance provision and the sanctioning of well-articulated ICT business laws. When asked if the current national laws, policies and economic regulations encouraged their business to adopt ICT, the interviewed participants presented the following responses:

A2 – "*The current government regulations actually bring constraints for small businesses especially in the mining sector. The regulations currently in place only permit us to sell minerals to a few selected elements who are exploiting us and ripping us off. This brings financial constraints that stifle any efforts for ICT enhancements*".

B1 – "*I don't think anyone in our business knows of any current government regulation or policies that encourage ICT adoption. If anything the current policies and regulations are causing bottlenecks and constraints for access to*

funding that we need to obtain advanced ICT tools. The regulations are not protecting small business like ours".

C2 and D1 also pointed out that the current national laws do not protect SMEs from exploitation and abuse from various institutions. The SMEs feel that for their part in creating employment and alleviating poverty, the government has failed to formulate regulations and policies that tackle SME challenges in a systematic manner. According to the participants, this will encourage SMEs to turn their attention from surviving the day to day hassles to adopting ICT.

D3 pointed out that it is critical for the government to put in place regulations and policies that mandate institutions like Post Office Savings Bank (POSB), Pensions Fund and National Social Security Authority (NSSA), to provide easily accessible loans for SMEs.

> E2 – "*There is need for the government to revise its regulations and align them with the mandate to develop small businesses. The current regulations or policies do not address the challenge of collateral that SMEs face especially in accessing funding. The government laws should guarantee viability for SMEs and enable them to borrow from financial institutions and access credit. This is the only way SMEs can be encouraged to have the capacity to acquire advanced ICT tools that will enhance their business operations".*

G1 also added that government policies and regulations should be penned in such a way that SMEs can also contend for government tenders. Obtaining tender documents to supply government departments should also be decentralised as currently, the only place you can obtain the documents is in Harare. According to the participants, this introduces serious cost constraints for businesses operating outside Harare and to a large extend affects the way SMEs adopt ICT.

> G1 - "*The government should just come up with laws that support SMEs, ensure that we are charged reasonable business license fees and embrace policing and regulatory practises that have a human heart".*

The participants also highlighted that ICT advancements in their organisations are closely tied to availability of funds and how they perform as a business and hence government regulations and policies are bound to affect the adoption of ICT. Data

collected from the SMEs also highlighted that the current policies were not protecting SMEs from cheap quality imports by foreign businesses. This, in turn, has seriously affected revenues for SMEs.

> L2 – "*The problem is that it is not so much the government regulations but the absence of social assistance and the lack of clarity and coordination that exists between government SME agencies and departments that wear small businesses down. The system is now characterised by rife frustrating bureaucratic procedures and penalties that discourages small business operation".*

The above comments confirm the point raised by Tsarwe (2014), that the current regulatory environment in Zimbabwe is not designed to enhance SME operations. He also adds that the current tax rates are very high and should offer relevant tax incentives.

4.4 ICT importance and extent of use

The SME participants were asked their views on the importance and extent of use of ICT in their businesses. Sin Tan *et al.* (2010), points out that the use and adoption of ICT is critical for enhancing SME innovativeness in providing unique products and services. Most of the SMEs feel that ICT is important and their comments are outlined below:

> A1 – "*ICT is important, I feel however, we have not been able to find ways of effectively applying ICT in our business. We need guidance and training to effectively adopt ICT in our business".*

> B3 – "*ICT has been critical for our business and has really helped us with the bulk of our accounting and administration work. We however, need to put a computer inside the shop for processing transactions. This will depend on how we perform in the next few months".*

> C3 – "*As you noticed when you took the tour of the premises we have incorporated ICT into our business and even our booking system is computerized. ICT will continue to be more and more significant for our business as we plan to add more, funds permitting of course".*

D2 – "*ICT plays a very important role in this organisation as most of our accounting, human resources and administration processes are executed through ICT. ICT enhancement has however, not been a priority as business has not been doing so well*".

E2 outlined that the importance of ICT in their business cannot be overstated despite the fact that there is a lot of paperwork that is used in their line of business and most case files in the Zimbabwean legal system have not been uploaded online. ICT within the small legal firm is used for communication with clients and for a whole host of administrative processes. The participants also highlighted that they would like to enhance ICT utilisation in their business in order to be at par with established firms within the capital.

F2 – "*ICT is now very important for our business especially for marketing our products and reaching out to a larger market. We would like to use more ICT tools though, but we lack the knowhow for upgrading*".

G3– "*Actually we had no choice but to include ICT in our operations because most of our suppliers were driving for the elimination of paperwork. Over the years we have also incorporated ICT into our financial and human resource processes and hence ICT has become quite significant for the business*".

H2 however, had a different view of the importance of ICT. The participants pointed out that as much as they had the computer to record produce, it was really not that significant to their business.

"*Most of our day to day processes do not require the use of ICT and produce records are just a fraction of what we do. However, we are still open to learn*".

I1 and J2 both pointed out the critical nature of ICT in their business and highlighted how ICT is at the centre of administration and financial processes. J2 highlighted that for a learning institution it was critical to set an example to their students in applying ICT as most of them were set on also starting their small businesses soon after completion of their studies. I3 also highlighted that the business is looking to incorporate more sophisticated ICT tools, especially for production purposes, resulting in an automated soap production process.

K1 – "*ICT is very important to our business and is at the core of everything we do. We utilise ICT for transactions on the floor and for communication with suppliers and other administrative purposes*".

Finally, L1 also reiterated the importance of ICT in the business and cited that as graphic designers, ICT was everything to the business.

"*We would cease to exist without ICT. However, because of financial constraints we do not have the best design software out there*".

The above comments confirm the point raised in various studies, namely that ICT is a critical element and tool for any SME in any economy and it enhances production and increases revenue (Koçak, 2011; Kyem, 2012). Apulu and Latham (2011), also ascertain that ICT enhances an SME's competitiveness and allows for enhanced mechanisms for accessing unique information services and new markets.

4.5 Adoption of sophisticated ICTs

The SMEs were asked if they felt sufficiently informed on sophisticated ICTs, and if they would consider the adoption of sophisticated ICTs in future. The comments received from the SMEs are outlined below:

A3 – "*I don't think we are at the state where we can use sophisticated ICT. We need assistance on how we can use the sophisticated ICT because we would like ICT to do more for us than what is currently happening*".

B1 – "*I don't know if we can say we are sufficiently informed but we do know that we need to take our ICT status to the next level. We critically need a POS system on our shop floor like the one they have in SPAR. We however, do not have the expertise in-house to identify what would be suitable for us*".

C1 – "*One of the key barriers we have experienced in our efforts to effectively adopt ICT has been the lack of knowledge on advanced ICTs. We really don't know what exactly we need to enhance ICT use in this business. Yes we do desire to employ more advanced ICTs*".

D2 and E3 indicated that they were not satisfied with the level of sophisticated ICT knowledge that they had. The participants from these two SMEs highlighted that it was

critical for their businesses to keep abreast with advanced technologies and to effectively utilise ICT to gain a competitive edge. The two small businesses would like to adopt more advanced ICTs in the near future.

> F1 – "*The question is who should be supporting small business in this arena and help us get the knowledge that we need on sophisticated ICTs. I am an insurance expert not an ICT expert hence I would not say I possess sophisticated ICT knowledge. With what we have seen already we know that this business will thrive with more advanced ICT application*".

> G1 – "*We are not well informed mostly because we do not have a department in our business that is sorely dedicated to ICT. We outsource according to the funds available. If there are advanced ICT tools that we can apply in our business then we would welcome them*".

> H3 – "*We barely have the basic knowledge let alone the advanced knowledge. With how business is currently going I don't know if we would be able to afford advanced ICT or know how to use it*".

The desire to upgrade current ICT systems and infrastructure was also outlined by I2, J1, K2 and L2. The main barriers to adopting sophisticated ICTs that were outlined by the four participants included a lack of knowledge and a lack of finances to acquire the desired advanced tools.

It is also critical to note from the data collected that the desire to be informed and learn about sophisticated ICTs is there, but what lacks is the supporting structure and platform to acquire the knowledge. According to Forman (2015), SMEs in developing countries have been wary to adopt sophisticated ICTs because of concerns as to whether these new tools would have any impact on their businesses. He also confirms the comments raised above that the level of adoption of sophisticated ICT is highly dependent on the level of internal ICT knowledge within the SME.

4.6 ICT Impact on operational costs and performance

According to Koçak (2011), the adoption of ICT positively impacts performance and operational costs for SMEs and introduces efficiencies in the administration of these

costs. The participating SMEs were asked if and how ICT affected their performance and operational costs.

4.6.1 Efficiency

The bulk of the participants except for those from SME H identified efficiency as one of the key impacts of adopting ICT within their operations.

> A3 – "*ICT has helped us to be more efficient with processing logistics and accounting data*".

> B1 – "*Ever since we started employing an ICT based system our inventory management has become very efficient and has reduced the time we used to spend trying to balance our stock*".

> C3 – "*The booking system has certainly improved our efficiency as far as logging and managing of bookings is concerned and gone are the days of double booking when things were done manually*".

> F2 – "*Our social media page has helped us to be more responsive to our clients' needs and has brought us much closer to the demands of the market*".

> I3 – "*We have enjoyed the efficiency of being able to share resources efficiently through our local area network, this reduces the time that used be spent on accessing information when a manual process was still in place*".

> K1 – "*We have benefited a lot from ICT especially for accounting which has enhanced decision making and the efficiency with which we manage the shop. Stock taking records are now more accurate. Previously we utilised manual cards which would take us weeks to update stock and orders*".

4.6.2 Operational costs

SME participants also highlighted how the use of ICT influenced their operational costs. I1, D3 and F1 clearly outlined how ICT had impacted operational costs.

> I1 – "*The adoption of ICT has had a major impact on operational costs especially on the transport costs that we would spent going up and down to*

town (Gweru), to speak to suppliers or to deliver or collect documents. Now with email most of the correspondence is done online and that has cut costs significantly".

D3 – "*Ever since we started utilising computers for accounting and human resource processes we have cut costs on outsourcing people for these processes. We can now update our accounts much easier and track our resources at a much lower cost*".

F1 – "*Our marketing bill has been cut almost by half with the use of email and social media. We used to pay an arm and a leg for billboards and radio adverts*".

4.6.3 Forecasting, planning and focusing

L2 highlighted that ICT has assisted their business in planning and forecasting.

"ICT has helped us significantly in managing our time and tasks and has ensured that we are not caught wanting in long running projects".

The above comments echo the results from various studies (Rogers, 2003; Koçak, 2011; Kyem, 2012; Apulu & Ige, 2011), with regards to the effects of ICT in SMEs.

4.7 Owner/Manager involvement and attitude towards ICT aspects

The issue of owner/manager involvement in ICT aspects of an organisation has been highlighted in various literature as being critical to effective ICT adoption and use in SMEs (Stockdale & Standing, 2006; Cragg & King, 1993; Caldeira & Ward, 2002; Charterjee *et al.*, 2002). Participants from the 12 SMEs were asked how the owners or management played a role in the ICT aspects of the organisation. 5(five), out of the 12 SMEs indicated some owner/manager involvement in ICT including decision making. Responses for this question were sought from non-managerial staff in the SMEs.

B3 – "*The owner is the one who came up with the idea of buying the computer in the back office. He even went all the way to Harare to buy it. However, the set up was done by one of his relatives who is not part of the business*".

D2 – "*The managers are quite proactive when it comes to ICT. They are involved in the decision making and driving the idea to have more ICT tools in the company*".

F3 – "*The manager is very involved and has pitched in with most of the ideas including the one to use social media for our marketing*".

J1 – "*At one point the only laptop that was in this college belonged to the owner. He was heavily involved in us getting the desktop that is at the reception and it is his vision to have a computer lab at the college*".

L2 – "As *an ICT based company and as owners we should take all the initiative when it comes to ICT implementation within the business. The cornerstone of this business is ICT so we must drive all ICT initiatives*".

On the other hand, the other participants did indicate that either the owners or managers were quite distant from ICT aspects and left them to other organisation members. However, they had to be informed if any purchases were being done and why. I2 pointed out that it took some time to convince the owners that the business needed some ICT injection, however, their son managed to convince them and became the key driver for the initiative. The only challenge is that the son is not involved in the business as he is also pursuing studies in Harare.

H1 – "*As a corporative all members should Buy-in into all decisions and initiatives and currently ICT is really not a priority for most members. Our drive really for now is to expand our market for our produce and then maybe we will think of ICT*".

K3 – "*The owner is a good manager but unfortunately, she is not very knowledgeable about computers. Hence, she outsources all knowledge and expertise on ICT from a local technician. He is the one who seems to have been driving most of the ICT initiatives that we have seen in the business. Maybe mostly because he has something to gain. He also provides the support*".

4.8 Factors limiting ICT adoption

The participants were asked to highlight factors that limited the effective adoption and utilisation of ICT within their SMEs. Various barriers that included technology and socio-economic factors were outlined. The barriers and corresponding participant comments are presented below.

4.8.1 Lack of finances

The lack of finances was indicated by all the participants as a barrier to effectively implement ICT within their businesses.

> A2 – "*It is an expensive endeavour which is quite limiting for us. The cost of running a generator to support ICT initiatives is very constraining. We can't afford to even upgrade. It is also difficult for us to access bank loans to fund ICT initiates mainly because we don't have collateral*".

> B1 – "*We have been informed that to have at least one point of sale machine in the shop we need close to US$500 (R6000), which would be a big dent to our current financial status. We need financial help to even think of further adoption. The current loan interest rates are inhibiting for small businesses like ours*".

> C1 – "*Finances are a key limiting factor for us. We would have wanted to do more as far as ICT is concerned but we still do not have the financial muscle to do so*".

> K3 – "*The costs of maintaining ICT in a small business like ours is inhibiting mainly because of the cost of electricity and internet*".

> L1 – "*Cost is key because currently, state of the art graphic design software is beyond our reach. We would have to sell all our current hardware just to get our hands on that software*".

The above evidence shows a critical lack of financial muscle to enable SMEs to adopt ICT. This confirms the point raised by Nkanga (2011), namely that most SMEs in developing countries do not have access to bank loans and will most often fail to obtain capital to enhance their ICT efforts.

4.8.2 Lack of knowledge

The issue of insufficient ICT knowledge was also mentioned by participants from seven SMEs, including A, B, C and H.

> A3 – "*Another barrier for us is the lack of in-house expertise on ICT. Most of the employees in this company do not have any background education on computers*".

> B3 – "*It would be difficult to adopt more ICT tools because the level of ICT knowledge in this business is quite poor. The ladies on the shop floor have never used a computer all their lives hence it would take time to get them knowledgeable*".

> C1 – "*The system we are currently using is extremely simple and yet only 2 individuals can use it. We desperately need to expand our ICT knowledge base if we are going to take ICT to another level in this business*".

> H2 – "*More than half of the corporative members had not seen a computer in their lives until recently and hence the capacity to operate any ICT tool is quite low in our entity*".

Eriksson *et al.* (2008), ascertains that a considerable level of appreciation of ICT by SME organisational members will directly impact the further uptake of ICT within the organisation and hence confirms the comments raised above.

4.8.3 Inferiority complex

It is important to note that two of the SMEs based in the rural areas highlighted inferiority complex as a negative factor affecting ICT adoption in their businesses.

> H2 – "*Computers are for those in Harare, they are not meant to be used by rural folk like us*".

Syed and Noor (2009), points out that most societies in developing countries are ripped with inferiority complex issues, with the general perception being that ICT is only for the privileged elite which has affected ICT adoption in organisations in these societies. This confirms the comment raised by H2.

4.8.4 Electricity constraints

The issue of electricity supply constraints was also pointed out as a negative factor impacting the adoption and use of ICT.

> A1 – "*We do not have any connection to the electricity grid and we totally rely on the generator. This is discouraging especially when it comes to adopting ICT equipment. Despite our location the electricity grid lines are not far away but our application has been sitting at the authority offices for months*".

> D2 – "*The supply of electricity in this area is also very bad and affects the effective Utilisation of electricity. Power outages have become more frequent in recent years which is defeating the purpose of using computers*".

> H1 – "*The lack of electricity in this area is another key barrier for us. How can we effectively move forward with ICT if we do not have a reliable supply of electricity*"?

Kapurubandara (2009), also highlights the negative effect that the lack of reliable electricity supply has on ICT adoption in SMEs.

4.8.5 Poor internet service

Another key barrier to effective ICT adoption and use that was discovered in the interviews was the lack of or poor internet service provision.

> D3 – "*Internet service is also very bad in that it frequently goes off. We have an ADSL connection which gives us problems almost every day. It doesn't help that it is also expensive. All other options are beyond us in terms of affordability. This limits our use of ICT as we cannot effectively send emails or search the web*".

> F2 – "*Internet connection has had a negative impact on our use of ICT. Our efforts to push our online marketing initiatives are hampered by poor and expensive internet services. It can take 30 minutes to upload a picture to our Facebook page which is just ridiculous and yet we pay US$12 (R168), for 2 Gigs of data*".

L1 – *"Internet service provision has been a pain for our business. Our business model heavily relies on internet connection and to find a reliable service provider who doesn't charge you exorbitant prices is a miracle. The service is still very slow especially for the charges that we pay".*

The above comments indicate that poor internet service is a critical barrier to the use of ICT by the participating SMEs.

4.8.6 Lack of Government support and corruption

Participants from SMEs pointed out that one of the major factors that limit their use and adoption of ICT was the lack of government support and the corruption that was rampant in departments that are linked to SMEs.

A2 – "*Government support is a key factor which unfortunately we have not seen in any way. As a small business the government has failed us in terms of ICT adoption. Each year the ministry talks big about how efforts and funds are being put aside to support SMEs but we never see it".*

C1 – *"Each year funds are set aside for SMEs but because of corrupt officials, that money disappears. We need financial help from the government because without that support, we will stay in survival mode and fail to advance ICT in our businesses".*

D3 – *"I will tell you something "shamwari" (my friend), the government doesn't care about the plight of small businesses. And yet we pay taxes and employ people. The support of the government is critical for us to access the funds and knowledge needed to expand our businesses and adopt advanced ICT tools".*

H2 – "*We are not going anywhere with this ICT issue if the government does not step up and play its part. It is worse for us here in the rural areas it is difficult to access any subsidies from the government and the worse thing is that we don't have a channel to voice our concerns".*

K3 – *"Right now because of the constraining regulations for accessing loans and the significant tax burden that we have, we cannot effectively adopt ICT. We need relevant and reliable support from the government".*

L1 – *"Indirectly and directly corruption plays a critical role in the advancement of ICT not only within the SME sector but in the country. These people are selfish and will not part with money to advance SME initiatives".*

The comments above indicate that SMEs require the support of the government for them to effectively adopt ICT and Baro (2011), confirms this by pointing out that government support and subsidies can have a massive effect on ICT adoption in organisations since the right and appropriate initiatives can positively influence the use of ICT in organisations.

4.9 Factors that drive successful ICT adoption

The SMEs were then asked to identify the factors that, in their experience, drive effective ICT adoption and use. Below are the success factors outlined and the comments that relate to the factors.

4.9.1 Management/owner support

The support of the management or owner came up as a key factor that drives a successful ICT adoption process within an SME.

B2 – "*If the owner has Buy-in on the idea of ICT adoption then there is bound to be less resistance on the issue".*

C3 – "*The support of management is very critical for ICT adoption mainly because they are the decision makers and if they don't support it, they will not drive it or decide for the idea".*

F2 – "*The success of any initiative in a small business hinges on the support of the owner because most the time the owner is very close to the business or actually works in the SME, like in our case. So he pioneers and supports initiatives including ICT adoption".*

The sentiments above were also echoed by G2, I3, J2 and L3 who indicated the critical nature of owner/manager support for ICT initiatives within the SME. Singh (2014), also adds that the support and attitude of SME top management plays a vital role in the adoption and use of ICT within the organisation.

4.9.2 Staff ICT training

ICT training within the SMEs was also highlighted during the interview as a success factor for ICT adoption and use.

> A3 – "*If the rest of the organisation can get basic training on the use of a computer it would definitely enhance ICT adoption efforts*".

> F3 –"*If the ICT skills of all the brokers here can be enhanced through training then ICT use and adoption within this organisation would become more effective*".

> H1 – "*The attainment of ICT knowledge and skills is very important for this organisation if we are to even consider buying another computer*".

> J2 – "*As a college it is critical for us to incorporate ICT training within our curriculum otherwise our students are going to be far behind their counterparts when they enter the working environment*".

All the SMEs also highlighted that no formal training on ICT was being done in their organisations, however, there was a unanimous agreement on the importance of ICT training to ensure effective ICT adoption efforts. Alaghbandrad *et al.* (2011), confirm the point above by pointing out that training and a supportive organisation learning environment will often drive and motivate employees towards utilisation and adoption of ICT.

4.9.3 SME friendly policies and subsidies

Policies and subsidies were also identified by some of the participants as success factors for ICT adoption.

> F3 – "*We need SME friendly policies for us to be able to take advantage of ICT effectively in our businesses. These might include policies that allow us to access cheap loans and ICT equipment*".

> G2 – "*With the right government ICT subsidies we can be able to buy computers or import them at very reasonable prices*".

I1 – *"Government policies are key to SME ICT efforts and the policies should be implemented. Policies that protect SMEs will result in the SME flourishing and empowered to adopt more innovations".*

J2 – *"A well-crafted ICT and implementable policy will support our ICT initiatives as small business and will help us to be more productive".*

As pointed out by Syed and Noor (2009), national policies have the potential to negatively or positively impact ICT adoption in SMEs.

4.10 Other comments and recommendations

The SME participants were given an opportunity to give additional comments and recommendations on ICT adoption and use in SMEs.

A3 – "*ICT is a critical tool for any businesses that wants to prosper in this country. I would advise small businesses to start positioning themselves to embrace ICT. The government should also put in place policies that will introduce subsidies for SMEs to acquire ICT tools and infrastructure at reasonable prices".*

B1 – "*For marginalised areas like ours, the government should put in place rural ICT centres that facilitate ICT knowledge transfer for small businesses. The centres will not only offer ICT training for SME stakeholders but also model how various ICT tools can be applied to business".*

C2 – *"ICT funding facilities have to be clearly defined by the government. SMEs will need to have a significant portion of the ministry budget that is allocated for ICT development within small business. In addition, to that a strict accountability system will need to be put in place to monitor how those funds are disbursed".*

D3 – *"I would like to encourage as many Zimbabwean SMEs to consider adopting ICT for their businesses. However, a few things will need to be in place for SMEs to effectively embrace ICT and relevantly apply to their businesses. A loan facility for SMEs should be in place to enable access to finances to acquire ICT equipment. The government also needs to subsidise ICT equipment for SMEs".*

E1 – *"In today's modern world ICT is very important for SMEs to be competitive but however, what lacks in this country is awareness on ICT application in small businesses. The government should champion this awareness campaign by conducting sector specific ICT needs analysis for SMEs especially in the rural areas. This will enable the government to accurately assist SMEs. Policies that the government has put in place to assist SMEs should also be clearly communicated to SMEs and translated to indigenous languages".*

F2 – "*ICT has the potential to significantly reduce operational costs for SMEs. What would be required however, is the attainment of knowhow on how to use tools like social media to reach larger markets".*

G3 – "*The government should ensure that every area where small businesses are located has reliable and accessible infrastructure especially electricity supply and internet access".*

H1 – "*Currently our use of ICT is very basic and we lack the knowledge to comprehend ICT. It would be good if we can receive government support or a Good Samaritan who can give us guidance on how we can effectively apply ICT".*

I2 – *"The use of ICT has helped our company significantly and we hope to adopt more ICT tools in the near future. As a recommendation I would call on SMEs to include ICT in their strategies. The government should assists SMEs through facilities that will equip small business owners with the knowledge on how to effectively adopt ICT".*

J3 – *"ICT is the cornerstone of any business today and SMEs should be encouraged to adopt ICT effectively. SMEs should also invest in training their organisation members to reinforce their efforts to adopt ICT".*

K2 – "*There is no escaping ICT hence SMEs have to change how they run their businesses if they want to remain relevant and look to employ relevant ICTs in their operations. On the other hand the government should coin practical policies that encourage ICT adoption in SMEs".*

L1 – "*I would recommend that all SMEs adopt some form of ICT in their businesses because this is the only way to gain any form of competitive edge*

in today's business world. Before starting a business, entrepreneurs should map how they are going to apply ICT in their businesses".

4.11 Summary of research findings

Below is a summary of the research findings presented in the tables below.

4.11.1 SME ICT utilisation level

SME (Case)	Basic ICT	Sophisticated ICT
A	Desktop (clone), Windows XP, Microsoft Office 2007, Printer	
B	HP Desktop, Windows 7, Printer, Microsoft Office 2010, Antivirus (Norton)	
C	HP Desktop, Windows 7, Printer, Microsoft 2010, Printer (Canon), Internet (ADSL)	SMS (AtomPark Bulk), system
D	Desktop (clone), Windows 7, Microsoft Office 2013, Internet (ADSL), Printer, Antivirus (AVG), Local area network (cable),	QuickBooks
E	Desktop (Dell), Windows 7, HP Laptop, Microsoft Office 2010, Antivirus (Kaspersky), Printer (HP), Internet (ADSL), Local area network (Wi-Fi),	
F	Desktop (Clone), Windows 7, Microsoft Office 2010, Internet (WiMAX), Printer (HP), Local area network (Wi-Fi),	QuickBooks, Bulk SMS (Source), WhatsApp, Facebook

G	Desktop (clone), Windows 7, Laptop (Dell), Printer, Internet (Econet Dongle), Antivirus (Avira)	
H	Desktop (clone), Windows XP, Microsoft Office 2007	
I	Desktop (HP), Windows 8, Microsoft Office 2013, Internet (fibre), Laptop (Dell), Printer (HP), Local area network (cable),	HP Server Desktop, Microsoft server 2012, SAGE Pastel, Bulk SMS (CAN)
J	Desktop (clone), Windows 7, Microsoft Office 2010, Printer , Internet (Wimax), Antivirus (Norton)	Edge Point of Sale , HP Server, Microsoft server 2012, Barcode Scanner
K	Desktop (HP), Microsoft Office 2010, Printer (Dell), Internet (ADSL), Local area network (cable),	
L	Desktop (HP), Windows 8, Microsoft Office 2013, Internet (fibre), Local area network (Wi-Fi), Printer (HP)	Apple iMac, Corel Draw, Photoshop, Xara

Table 9 SME ICT utilisation

Table 9 above outlines some of the common ICT tools utilised by the study participants and reveals the Desktop as the most commonly used tool. It is also interesting to note that only five (5) out of the 12 participants have an Antivirus installed on their machines and yet nine (9) of the participants have internet connection. Sophisticated ICT tools vary across the participants, however bulk SMS systems seem to be a common feature for three (3) of the participants.

4.11.2 Government factors affecting ICT adoption and use

Factor	SME (Case)
Government support	A,B,C,D,E,F,G,H,I,J,K,L
Enabling policy	A,B,C,D,E,G,L
Tax breaks	A,D,K
Regulations	A,B,C,D,E,G,L
Subsidies	A,B,C,D,E,F,G,H,I,J,K,L
Corruption	A,C,D,E,F, H,K,L
Infrastructure	A,G,D,H,F,L

Table 10 Government factors affecting ICT adoption

Table 10 highlights the frequency with which government related factors were mentioned by the participants. The table reveals that Government support and subsidies were the most commonly identified factors affecting ICT adoption by the participants.

4.11.3 Other factors affecting ICT adoption and use

Factor	SME (Case)
ICT knowledge/Skill	A,B,C,H
Finances	A,B,C,D,E,F,G,H,I,J,K,L
Management/Owner support & attitude	B,C,E,F,G,H,I,J,K,L
ICT training	A,F,H,J
Inferior complex	H
Perceived advantage	A,B,C,D,E,F,G,H,I,J,K,L
Complexity	A,B,C,H
Guidance	B,G,A,H

Table 11 Other factors affecting ICT adoption

Table 11 identifies other factors that were highlighted by the participants as being key to ICT adoption and use. The table reveals that the most common items in this group are finances and perceived advantage.

CHAPTER FIVE: DISCUSSION AND FINAL FRAMEWORK DEVELOPMENT

5.1 Introduction

This chapter examines the findings of the study in relation to the research questions. The chapter presents a discussion of the research findings and aligns them to the reviewed literature. Insights from the interviews have facilitated the provision of a robust perspective on issues related to ICT adoption and use in Zimbabwean SMEs.

The chapter is a critical narrative of the whole thesis and incorporates perspectives that emerged during the course of the study and where possible, the research findings are compared with past studies. The study results for each of the four research objectives are explained and presented within the context of modern academic knowledge. The chapter concludes with a presentation of a framework that stimulates ICT adoption and utilisation in Zimbabwean SMEs.

The chapter is structured into five sections based on the study's five sub-research questions:

- What role should the Zimbabwean government play in SME ICT adoption?
- What are the factors that limit ICT adoption in Zimbabwean SMEs?
- What are the success factors that drive ICT adoption in Zimbabwean SMEs?
- What is the operational impact of ICT adoption within Zimbabwean SMEs?
- To what extent do Zimbabwean SMEs use and adopt sophisticated ICTs?

5.2 Zimbabwean government role in SME ICT adoption and use

This section discusses the research findings that relate to the role of the Zimbabwean government in the process of ICT adoption and use by Zimbabwean SMEs. The insights gained from the research findings presented in Chapter Four indicate that the government has a critically significant role in stimulating ICT adoption in Zimbabwean SMEs. Some of the areas that relate to the role of the government, and were highlighted in the research findings, will now be discussed.

5.2.1 Government ICT help

Government SME support was sighted in the findings as being critical to ICT adoption and use by Zimbabwean SMEs. The findings revealed that there is a critical deficiency of Government support as far as ICT adoption is concerned. It can also be noted from the findings that SMEs prefer any form of government help when it comes to ICT adoption. Insights gained from the findings also reveal selective government assistance, with support being given to SMEs that are aligned with a certain political party. The research findings also indicate that government SME stakeholders are not visible in marginalised areas and hence the SMEs are left stranded on where to get guidance or financial advice that facilitates ICT adoption.

The points raised above are confirmed by Nyoni (2012), who points out that the assistance that has been offered by the Zimbabwean government in recent years, has been piecemeal, clumsy and not relevant to the critical needs of SMEs, including ICT adoption.

5.2.2 Government ICT policy awareness

According to Syed and Noor (2009), government policies have the potential to negatively or positively impact ICT adoption in organisations as policymakers can coin policies that create an enabling environment that supports and encourages ICT use. The empirical findings point out that there is a limited knowledge and awareness of government policies that relate to SMEs. There is no in-depth understanding of what the policy entails. In other quarters, SMEs are completely oblivious of any government policies that deal with the welfare of SMEs.

Insights from the findings show that there are no efforts by the government to inform the relevant stakeholders on how policies affect their wellbeing. The government needs to put structures in place, that serve not only to comprehensively inform grassroots organisations on policies that affect them but to also get feedback on whether these policies are making any difference at all for SMEs. It is clear from the findings that the Zimbabwean government only formulates policies out of a sense of duty, with no intentions to implement the policies.

5.2.3 Government financial subsidies

The research findings show that the government of Zimbabwe has not offered SMEs any financial subsidies that would facilitate ICT adoption. The government has not stepped in to ensure that SMEs access cheap loans, which would give them an incentive to acquire ICT tools for their businesses. Financial institutions in Zimbabwe do not differentiate between large corporates and SMEs, when it comes to accesses loans. Interest rates are too steep for SMEs and options to import ICT equipment are beyond the reach of these organisations, as they lack the financial muscle to do so.

Government subsidies that are mentioned in various policies, including the ICT policy, have failed to materialise as funds have been embezzled or redirected to other uses. This has left most SMEs desperate for financial subsidies that have the potential not only to revive their struggling businesses but to also encourage the adoption of advanced ICTs. Mutula and Van Brakel (2007), confirm the above point by arguing that without effective government subsidies, SMEs struggle to perform on the same platform as large organisations.

5.2.4 Government support for SME ICT adoption

The research findings from both the reviewed literature and interviews indicate that government support for SME ICT adoption is a critical variable. Insights from the study findings highlight that the Zimbabwean government should provide support for SMEs in their efforts to enhance ICT adoption in their businesses. The government has been called upon by SMEs to extend support that is relevant and of value, indicating that this has currently not been happening.

The government has been called upon to provide support through infrastructure development and accessibility for SMEs, including electricity and Internet connection. Support through financial facilities tailor-made for small businesses was also indicated as being critical. Regulatory and policy support was also highlighted in the research findings, pointing to a need for a major revamp of government regulations and policies that are currently assumed to be assisting SMEs. A study by Martinsons (2008), also confirmed that various forms of government support can stimulate SME ICT adoption

in any economy, resulting in the realisation of organisational goals and a significant contribution to the nation's economy.

5.2.5 Government laws, policies and regulations

Insights from the research findings indicate that the current Zimbabwean government regulations, policies and laws that relate to SMEs are actually a major constraint to the operation of the small businesses. The constraints are coming through restrictive regulations that stifle the existence of an open market which is subjecting SMEs to narrow revenue avenues. Regulatory constraints also exist in the registration procedure for small businesses and access to tenders, which data is negatively impacting the performance of the SMEs according to the research.

Perspectives from the research findings also point to the fact that current government regulations are causing bottlenecks for SMEs to access finances or to operate effectively. Other pain-points highlighted in the research findings include frustrating bureaucratic procedures, penalties and exorbitant business licences that have to be paid annually. It is clear that it is quite difficult for SMEs to even consider basic ICT adoption, let alone advanced ICT adoption in an environment where policies and laws are constantly squeezing the life out of them. Various studies also reveal the constraining nature of the regulatory environment in Zimbabwe, highlighting the absence of incentivised policies and schemes that have the potential to drive and stimulate ICT adoption within Zimbabwean SMEs (Nyoni, 2012; Tsarwe, 2014).

5.3 Factors that limit ICT adoption

In addition to government-related inhibitors of ICT adoption, various limiting factors were also identified in the research findings. A discussion of these inhibitors follows below.

5.3.1 Lack of finances

The research findings revealed the lack of finances as one of the most critical factors that have inhibited Zimbabwean SMEs from the effective adoption of ICT. Stockdale and Standing (2015), point out that the lack of financial resources has resulted in the

failure of SMEs to cope with costs related to the adoption of ICT, which include training costs, hardware and software purchasing costs, support costs, scalability costs and maintenance costs. Insights from the research findings highlight that the cost of attaining and maintaining ICT equipment has inhibited most SMEs from embracing ICT tools. With limited access to bank loans, SMEs are only left with the option to put on hold plans to adopt ICT tools. Extensive loan interest rates have also not helped.

The interviewed participants highlighted that the investment cost for adopting ICT was very high. Interestingly, insights from the research findings indicate that the issue of ICT costs is a critical issue for all SMEs despite their current level of ICT utilisation. This view is consistent with Ongori and Migiro's (2011) research, which points out that even the ICT adopters are not willing to adopt advanced ICTs or to upgrade existing systems due to high adoption costs.

5.3.2 Lack of knowledge

The lack of ICT knowledge was sighted by SMEs as being an inhibitor to the effective adoption of ICT. The lack of ICT knowledge makes it difficult for the SMEs to obtain the requisite skills. With the absence of IT training at most rural and peri-urban schools in Zimbabwe, most employees in SMEs do not have any formal ICT training. Meso, Musa and Mbarika (2006), echo this point by pointing out that more than 60 percent of the population in developing countries stays below the poverty line and hence attaining any form of ICT skill is often a farfetched goal. Despite the high demand for skilled personnel, the number of ICT graduates in most countries has continued to fall, which has impacted negatively on organisations' efforts to improve ICT adoption.

The research findings reveal that this will continue to be a critical issue as long as relevant authorities do not make proactive initiatives to develop the ICT skill base in marginalised areas. Insights from the research findings indicate that there is a desire amongst the participants to acquire ICT skills on the use of computers if the opportunity is availed to them.

The findings also reveal that the lack of ICT knowledge is a key constraint for the adoption of sophisticated ICT for the SMEs. The research findings confirm the point raised by Abor and Quartey (2010), who note that the inability of most owners and

managers to identify ICT products or services that are relevant to their businesses and organisations is a key barrier for ICT adoption in their organisations.

The SME owners are even concerned that if they buy more ICT equipment no one will be able to use it. Therefore, to ensure effective ICT adoption in Zimbabwean SMEs, it is critical for all organisational members to acquire some knowledge of IC, including the relevant technical skills.

5.3.3 Inferiority complex

The research findings in Chapter Four revealed an inferiority complex as another key inhibitor to ICT adoption in SMEs. The view amongst some of the SMEs is that computers are only meant for a certain calibre of people and businesses. They join a myriad of other people staying in rural areas who are not confident enough to believe that they too can gain ICT knowledge and be able to apply it to business. Syed and Noor (2009), echoed this point by outlining that most societies in marginalised areas are ripped with inferiority complex issues with the general perception being that ICT is only for the privileged elite, which has affected ICT adoption in SMEs.

There is a critical need to remove ICT phobia from marginalised areas in Zimbabwe through knowledge impartations and setting up ICT centres that demystify the adoption and utilisation of ICT.

5.3.4 Electricity constraints

The research findings reveal that one of the most prevalent inhibiting factors to ICT adoption and use in Zimbabwean SMEs is the lack of and haphazard supply of electricity. Constraints related to electricity in Zimbabwe have remained a bane for most SMEs in Zimbabwe in their efforts to utilise and adopt ICT. Most SMEs, especially in rural areas, are not even connected to the electricity grid due to the unavailability of the infrastructure and the inhibiting costs of connecting to the grid. SMEs are left to resort to alternative sources of energy, such as generators, which are still costly to maintain.

Kapurubandara (2009), affirms that the goal of driving ICT adoption in any nation is heavily dependent on a reliable infrastructure that includes electricity supply. Generally, unreliable electricity supply has continued to be a critical challenge with

blackouts and customary load shedding being a common occurrence in both rural and urban areas. The reviewed literature and research findings indicate that Zimbabwean SMEs are constantly facing significant challenges with regard to the provision of utilities such as electricity and water. It is critical to note that despite the amount of solar exposure the country experiences throughout the year, the country still remains critically energy deficient.

5.3.5 Poor internet service

The research findings revealed that quality internet service in Zimbabwe remains a nuisance for SMEs and negatively impacts effective ICT utilisation and adoption. The level and quality of service provided by ISPs is yet to improve and insights from the research findings show that this has been a major source of discouragement for Zimbabwean SMEs in utilising and adopting ICT.

The exorbitant data prices and haphazard service are key constraints for online marketing and transactions. While studying SMEs in developing countries, Molla and Licker (2005), discovered that the quality and accessibility of internet services was a critical barrier to ICT adoption in these SMEs. Despite the various perspectives highlighted in the literature on the unparalleled growth of the internet in Zimbabwe and the rapid uptake of mobile internet in the past decade (Tsarwe, 2014; Kabanda, 2014; Zindiye & Roberts-Lombard, 2012), more still needs to be done in terms of quality and affordability. The research findings show that both ADSL and fibre are still either very slow or expensive.

The research findings also indicated that SMEs in Zimbabwe are constantly faced with the difficulty of internet service unavailability, poor bandwidth, constant disconnection and slow connectivity, which is a major inhibitor for ICT use and adoption. It should be noted that setup costs were also indicated as a constraint.

5.3.6 Lack of government support and corruption

The lack of government support through policies and laws was specifically highlighted during the interviews as being a major barrier to ICT adoption and use for the SMEs. Policies and regulations play a critical role in creating an enabling environment for

SMEs and hence the poor and inconsistent formulation and implementation of policies by the Zimbabwean government has failed to stimulate business efficiency and ICT adoption within the SMEs. The research findings add to the myriad of evidence that points to the lack of ICT expertise within the Zimbabwean government to articulate and execute a coordinated national ICT policy.

The government has failed to be visible and relevant to the ICT needs of the SMEs, leaving most SMEs feeling abandoned and desperate from the lack of government support. Baro (2011), also confirmed that government support has a substantial and positive link to ICT adoption in SMEs. On the other hand, Nyoni (2012), also adds that the Zimbabwean government lacks a policy implementation framework which has resulted in the absence of a purposeful ICT policy that drives adoption. In addition, to the lack of support and policy implementation framework, corruption has been a stench within all Zimbabwean government rankings and has been a key ingredient and catalyst of government policy and initiative failure.

The diverting of funds by government officials, which are meant for policy implementation, has become common knowledge in business circles as indicated by the research findings. The UTAUT model by Venkatesh *et al.* (2003), also highlights the importance of facilitating conditions that support effective and efficient ICT adoption within organisations. These facilitating conditions include a supportive and friendly business environment in which the government plays a key role.

5.4 Factors that drive successful ICT adoption

The research findings also indicated a number of motivating factors that drive successful ICT adoption and use within Zimbabwean SMEs.

5.4.1 Management/owner support

Singh (2010), points out that the involvement of SME owners and management is critical to the success of ICT adoption and use in SMEs. His point was echoed by most of the interviewed participants who noted how owners and managers in their respective SMEs have championed the adoption of ICT. Insights from the findings reveal that the attitude and perspective of the SME owner towards ICT determines the

level of support that he or she will give to ICT initiatives. This is also critical because all of the participating SMEs are run and managed by the owners and hence, the buy-in of the owner is critical for the success of ICT initiatives since all acquisitions have to be approved by the owners.

The research findings also indicate that the skill level and ICT knowledge of the owners and managers also influences their drive to pioneer new ICT routes for their organisations. However, passion, willpower and vision have been noted to also be key owner/manager characteristics that positively drive ICT adoption in SMEs. Tarafdar and Vaidya (2006), confirm this point by adding that for SMEs in developing countries, the support and buy-in of owners and management is a key precondition for effective ICT adoption in SMEs. The above findings are also echoed under the social influence construct in the UTAUT model by Venkatesh *et al.* (2003), which highlights that colleagues or managers can influence other organisation members to adopt ICT within the organisation.

5.4.2 Staff ICT training

The interviewed participants further highlighted the importance of ICT training as a driver for successful and effective ICT adoption and use in Zimbabwean SMEs. Most SMEs acknowledge that there is a lack of adequate ICT skills within their organisation and the main solution would be to appraise the skills of the employees through training. Despite the notion that most SME owners in developing countries do not consider employee ICT training as a critical component of employee development, the majority of the research participants pointed to this factor as being key to the success of ICT adoption efforts.

Alaghbandrad *et al.* (2014), confirm the insights from the research findings by pointing out that the provision of employee ICT training programs in SMEs ensures solutions to any challenging situations faced during ICT adoption and the opportunity to learn new ICT skills better.

5.4.3 SME friendly policies and subsidies

Another key driver of effective and successful ICT adoption highlighted in the research findings is the presence of SME friendly policies and subsidies. Insights from the research show that well formulated and relevant policies have the potential to change the ICT landscape for a country's business environment. Subsidies will facilitate the acquisition of ICT equipment at affordable prices for SMEs and the right policies will protect SMEs from harsh regulations and allow them to access funding and support.

The above statement aligns with views of Chan and AlHawamdeh (2002), who noted that in developing nations, government policies play a critical part in the advancement of ICT adoption in SMEs. They also pointed out that favourable policies stimulate innovativeness among SMEs, encouraging the enhancement of ICT adoption.

5.5 Operational/performance effect of ICT in SMEs

The review of the literature revealed that ICT is a key ingredient for SME performance as it facilitates the creation of business opportunities and enhances the competitive edge of the SMEs. The research findings highlight that the selection of appropriate ICT tools enhances various organisation elements, which include the reduction of expenses, the organisation's internal processes, communication, marketing and advertising efforts.

The research findings highlight various positive impacts that are linked to the utilisation and adoption of ICT amongst the participating Zimbabwean SMEs. The key metric for this was the production value addition to the SME. The findings also reveal that some of the SMEs are getting some return on their investment since the benefits mentioned are linked to the reasons why they adopted ICT. The Performance Expectancy Construct outlined by Venkatesh et al.'s (2003) UTAUT model, highlights the extent to which an ICT user attains better performance from utilising ICT. Performance expectancy was revealed from the research findings as a key enabler of ICT adoption.

It is interesting to note that the benefits experienced from the utilisation of ICT varies across the SMEs but to an extent, this is also related to the type of ICT tools being utilised within the SMEs. The participating SMEs in question identified three key ways through which ICT had impacted the performance of their business operations

5.5.1 Efficiency

Eleven out of the 12 participating SMEs indicated efficiency as being one of the benefits of utilising ICT within their organisations. Insights from the findings show that ICT has positively impacted day-to-day functions within the organisations. The research findings also show that ICT brought a big relief to the cumbersome data processing that was being experienced for accounting and human resource processes.

ICT is enabling the SMEs to be more responsive to their clients' needs, including the enhanced efficiency in communication from applying online tools. The SMEs have realised efficiencies in inventory management, enhanced sales, quicker delivery times and productivity. These findings are consistent with that of Koçak (2011), who points out that ICT adoption in SMEs enhances efficiency savings and stimulates organisational effectiveness.

Alaghbandrad *et al.* (2014), also found that the use of ICT at strategic, operational and key organisation levels encourages effective correspondence and information trade. They also confirm the research findings by highlighting aspects that include enhanced customer relations, teamwork, services visibility, market share increase and enhanced competitive advantage as a result of ICT utilisation.

5.5.2 Operational costs

The findings revealed the positive impact of ICT adoption on operational costs within the SMEs. The interviewed participants noted that the use of ICT, especially for communication, proved essential for cutting travelling expenses. The expense of hiring additional personnel has now been scrapped in some SMEs as ICT facilitates the execution of certain processes in an efficient way. These findings confirm Uwalomwa and Ranti's (2009) point, that ICT reception and use in SMEs correlates with statements of income.

5.5.3 Forecasting, planning and focusing

Forecasting, planning and focusing were also highlighted in the research findings as being a critical benefit of ICT. This highlights the ability to utilise ICT to plan for upcoming projects and events. This ensures that the business is able to allocate resources effectively and budget time efficiently. Apulu and Ige's (2011) study on ICT in SMEs also revealed effective planning and forecasting as key benefits of adopting and utilising ICT in business. SME L utilises ICT to plan the execution of different projects ahead of time. The research findings also reveal that SMEs can minimise projected risks by utilising ICT to access information that facilitates the effective compilation of budgets. A number of SMEs also highlighted the use of ICT for inventory management, which also facilitates effective planning and forecasting. This view is confirmed by the findings of Apulu and Ige (2011), that reveals that the use of ICT in SMEs facilitate risk minimisation and enable organisations to plan and enhance SME communication and flexibility.

5.6 Adoption and use of sophisticated ICTs

The research findings highlighted that six out of the twelve participating SMEs uses some form of advanced ICT. The sophisticated systems utilised by these SMEs include SMS platforms, server systems, accounting software, server desktops, point-of-sale systems and graphic design software. The other six participating SMEs use traditional ICTs which includes Microsoft Office, desktops and printers. These SMEs indicated that their main challenge for adopting more advanced ICT tools was the lack of expertise and knowledge of what exactly they should add to what they have and the value they would get from the sophisticated ICT.

The findings also indicate that most owners do desire to adopt more sophisticated ICT tools based on the benefit they have experienced with what they currently have on the ground, however, concerns are still on the return on investment that they hope to get after adoption. The SMEs that had some form of sophisticated ICT in their organisation indicated the lack of finances as a barrier to adopting more sophisticated and up-to-date tools. It should be noted that some of the participating SMEs do not just utilise sophisticated ICT for data processes but have also incorporated the tools into their business processes. For instance, SME J utilises a server-based point of sale system

and barcode scanners which facilitate their in-store transaction business process and enhances the tracking of their system.

SME I utilises Sage Pastel not only for accounting functions but also as a mini-warehouse management system. SME C can receive feedback from customers using their SMS platform which enhances product enhancement and market targeting. SME L employs Corel Draw and Photoshop which are powerful graphic design tools to ensure that their products are competitive. However, there is more that needs to be done to bring awareness to these SMEs on the latest sophisticated ICT tools that can enhance their business processes. Forman (2015), affirms that adoption of sophisticated ICT tools enhances competitive advantage and allows SMEs to compete at the same level with large corporates.

5.7 Recommendations and success strategies

Insights from the research findings and review of literature have highlighted key constructs that play a critical role in the adoption and utilisation of ICT in Zimbabwean SMEs. The findings show that ICT adoption stimulation in Zimbabwean SMEs relies on government support and intervention, a conducive business environment, relevant policies and regulations, sufficient infrastructural facilities and access to loans. Sustainable ICT adoption and utilisation in Zimbabwean SMEs will only be achieved through a concerted effort amongst the key stakeholders who include financial institutions, the government, internet service providers and the business community. The analysis of the data collected from the interviews has facilitated the identification of key factors that inhibit ICT adoption and utilisation in Zimbabwean SMEs. The section below outlines key strategies and recommendations which could solve the current issues and enhance ICT adoption and use.

5.7.1 Enhanced government support and initiatives

The research findings reveal that the role that is currently played by the Zimbabwean government in enhancing ICT adoption in SMEs is inadequate. The government does not have a well thought-out framework for helping SMEs and the current policies, legislation, regulations and laws have failed to stimulate effective ICT adoption within Zimbabwean SMEs. Below are the recommended strategies based on the empirical

findings that can assist the government in effectively supporting SMEs in their ICT adoption efforts.

Recommended strategies

- Include an extensive consultative process with SMEs when formulating and reviewing policies, regulations and laws that affect the welfare of these organisations. This can be done through workshops and other informal SME gatherings. This ensures relevance and effectiveness of the policies and regulations.

- Invest in a policy implementation framework that is measurable and quantifiable. Adopt a project approach to policy implementation that facilitates accountability and visibility throughout the implementation process. The government should also ensure the buy-in of relevant stakeholders before implementing policies through practical demonstrations of key policy elements.

- Formulate SME friendly policies that assist SMEs in the area of equity finance and simplify loan acquisition processes for SMEs.

- Embark on policy awareness initiatives that ensure all SME stakeholders are aware of the current portfolio of policies that affect their welfare. This can be done through roadshows or mandatory meetings and workshops.

- Set up government ICT centres especially in marginalised areas where SME owners and employees can be coached and trained by experts on the value of ICT in business and help the participants identify ICT tools that are relevant for their businesses. Incentivise the attendance of these sessions.

- Introduce tax rebates for SMEs that reduce the tax burden on SMEs.

- Introduce import duty subsidies for ICT equipment for SMEs.

- Active legislation against corruption including the tracking and punishment of corrupt government officials.

- Formulate regulatory policies directed at microfinance institutions to facilitate SME financing and monitor interest rates.

- Enhance the relationship between SMEs and financial institutions and suggest workable funding programmes.

- Mandatory inclusion of ICT training in education and training institutions curriculums.

- Introduce incentives for SMEs who take the initiative to adopt ICT for business processes.

5.7.2 Reduced electricity constraints

The research findings revealed that electricity constraints remain a challenge to ICT adoption and utilisation and hence plays a role in inhibiting the development of the SME sector in Zimbabwe. The absence of the necessary infrastructure in certain areas where SMEs are located was highlighted in the research as a factor that restricts advancement in modern technologies in these SMEs. Most areas in Zimbabwe rarely go for more than 48 hours without uninterrupted electricity supply. The cost of alternative sources of energy is also quite steep. Below are key strategies that relate to electricity constraints.

Recommended strategies

- Expand electricity infrastructure to marginalised areas.
- Aid private sector participation in supplying electricity through a revised regulatory and legal framework.
- Implement SME financial subsidies for equipment that supplies alternative energy.
- Prioritise the implementation of new power plants in order to boost capacity.
- Invest in national renewable energy projects

5.7.3 Improve ICT knowledge and skills

The lack of ICT knowledge and skills was highlighted in the research findings as a critical factor not only affecting utilisation but also the adoption and use of sophisticated ICT tools. There is a clear indication from the participating SMEs that the lack of expertise within their organisations has significantly hindered ICT adopting and effective utilisation. Insights from the research findings also highlight that the technical skill level of employees is critical to the success of ICT adoption and use within an SME. The study also showed that the owner / manager's ICT skill level has a substantial impact on the level of ICT adoption within Zimbabwean SMEs.

The findings further reveal that ICT training within SMEs is almost non-existent and SMEs do not include ICT training as part of their strategies. Some owners fear that ICT skill development within their organisations will result in staff turnover. Most educational institutions in Zimbabwe are still struggling to adopt ICT in their curriculums and hence the churning out of ICT illiterate graduates. Highlighted below are recommended strategies to deal with this issue.

Recommended strategies

- SMEs to include ICT training within their strategies.
- SMEs to establish training initiatives.
- Include ICT training in HR KPIs.
- Government to facilitate ICT training for SME owners and organisational members.
- Government to initiate and provide training facilities that facilitate training for SME owners and employees.

5.7.4 Enhance SME owner/manager ICT awareness.

One of the key drivers towards effective ICT use and adoption highlighted in the research findings is the involvement, attitude and support of the owner/manager. The research findings point to the fact that the personal characteristics and past experiences of the owner/manager can impact the adoption and use of ICT within an SME. ICT investments in Zimbabwean SMEs are substantially driven by the SME owners. The findings also point to the fact that there is a general lack of awareness by Zimbabwean SME owners on the technological changes occurring within the business environment and hence this has negatively impacted ICT adoption.

Recommended strategies

- Owners/managers to engage in ICT training to enhance awareness and inspire organisational members.
- Government to initiate programmes that facilitate ICT awareness for SME owners and managers.
- Equip owners/managers to also conduct ICT training within their organisations.

5.7.5 Enhance SME finance capacity

One of the most mentioned factors that affect ICT adoption and use within Zimbabwean SMEs was the issue of financial capacity. In addition, insights from the reviewed literature also confirmed financial resources as a critical ingredient not only for ICT adoption but for the general development of the SME sector. The constraints related to the adoption of sophisticated SMEs has also been linked to the financial capacity of SMEs.

The findings also indicated that ICT skills development in Zimbabwean SMEs faces the challenge of financial injection and hence the concept often dies a natural death. The other challenge highlighted is access to subsidised financial support from various institutions, which has discouraged SMEs from adopting advanced ICT.

Recommended strategies

- Reduced interest for SME loans.
- Enable easy access to capital for SMEs.
- Enhanced relationships between SMEs and financial institutions.
- SMEs to diversify product and service offering in order to increase revenue streams.

5.7.6 Enhance internet service provision

The poor quality and high costs related to the service were pointed out in the research findings as critical inhibitors to ICT adoption within Zimbabwean SMEs. Low bandwidth, irregular services and frequent disconnection by ISPs were amongst the noted challenges facing SMEs. These challenges were pointed out by participants as key hindrances to online activities and key communication processes.

Recommended strategies

- Improved quality of service by ISPs.
- Subsidised cost of services for SMEs.
- Government through POTRAZ to extend internet infrastructure to include marginalised areas.

5.8 Proposed ICT adoption and effective utilisation framework for Zimbabwean SMEs

The discussion so far has indicated key constructs that make up the ICT adoption framework for Zimbabwean SMEs. It is interesting to mention that the bulk of the constructs are related to the role of the government. The research findings have facilitated the development of key strategies that make up the ICT adoption and utilisation framework. The outlined framework serves as a guide that will facilitate the removal of barriers inhibiting ICT adoption in Zimbabwean SMEs and stimulate further adoption of sophisticated ICTs.

Table 12 below gives a summary of the key factors affecting the adoption and use of ICT and also identifies the various stakeholders responsible for ensuring effective implementation.

Factor	Success Strategy	Responsibility
Government role and support	- Consultative process. - Policy implementation framework. - SME friendly policies. - Policy awareness initiatives. - Set up Government ICT centres. - Introduce Tax rebates. - Introduce import duty subsidies for ICT equipment for SMEs. - Active legislation against corruption including the tracking and punishment of corrupt government officials.	Government

	• Formulate regulatory policies directed at microfinance institutions. • Enhance the relationship between SMEs and financial institutions. • Mandatory inclusion of ICT training in education and training institutions curriculums. • Incentives for SMEs who take the initiative to adopt ICT for business processes.	
Electricity Constraints	• Expand electricity infrastructure to marginalised areas. • Aid private sector participation in supplying electricity through a revised regulatory and legal framework. • Implement SME financial subsidies for equipment that supplies alternative energy. • Prioritise the implementation of new power plants in order to boost capacity.	Government

Lack of ICT knowledge and skills	• SMEs to include ICT training within their strategies. • SMEs to establish training initiatives. • Include ICT training in HR KPIs. • Government to facilitate ICT training for SME owners and organisational members. • Government to initiate and provide training facilities that facilitate training for SME owners and employees.	Government/Owner/Manager
SME owner/manager ICT awareness	• Owner/managers to engage in ICT training to enhance awareness and inspire organisational members. • Government to initiate programmes that facilitate ICT awareness for SME owners and managers. • Equip owner/managers to also conduct ICT training within their organisations.	Government/Owner/Manager

Lack of financial capacity	• Reduced interest for SME loans. • Enable easy access to capital for SMEs. • Enhanced relationships between SMEs and financial institutions. • SMEs to diversify products and service offering in order to increase revenue streams.	Government/Financial Institutions
Poor Internet Service	• Improved quality of service by ISPs. • Subsidised cost of services for SMEs. • Government through POTRAZ to extend internet infrastructure to include marginalised areas.	Government/ISPs

Table 12 Summary of factors affecting ICT adoption

Figure 13 presents the proposed framework for ICT adoption and effective utilisation for Zimbabwean SMEs and incorporates the success strategies discussed above. The framework outlines key entities that can change the ICT use and adoption status in Zimbabwean SMEs and these include government support, owner/manager support including ICT skill development for staff members, financial support and infrastructural support which includes electricity and internet services.
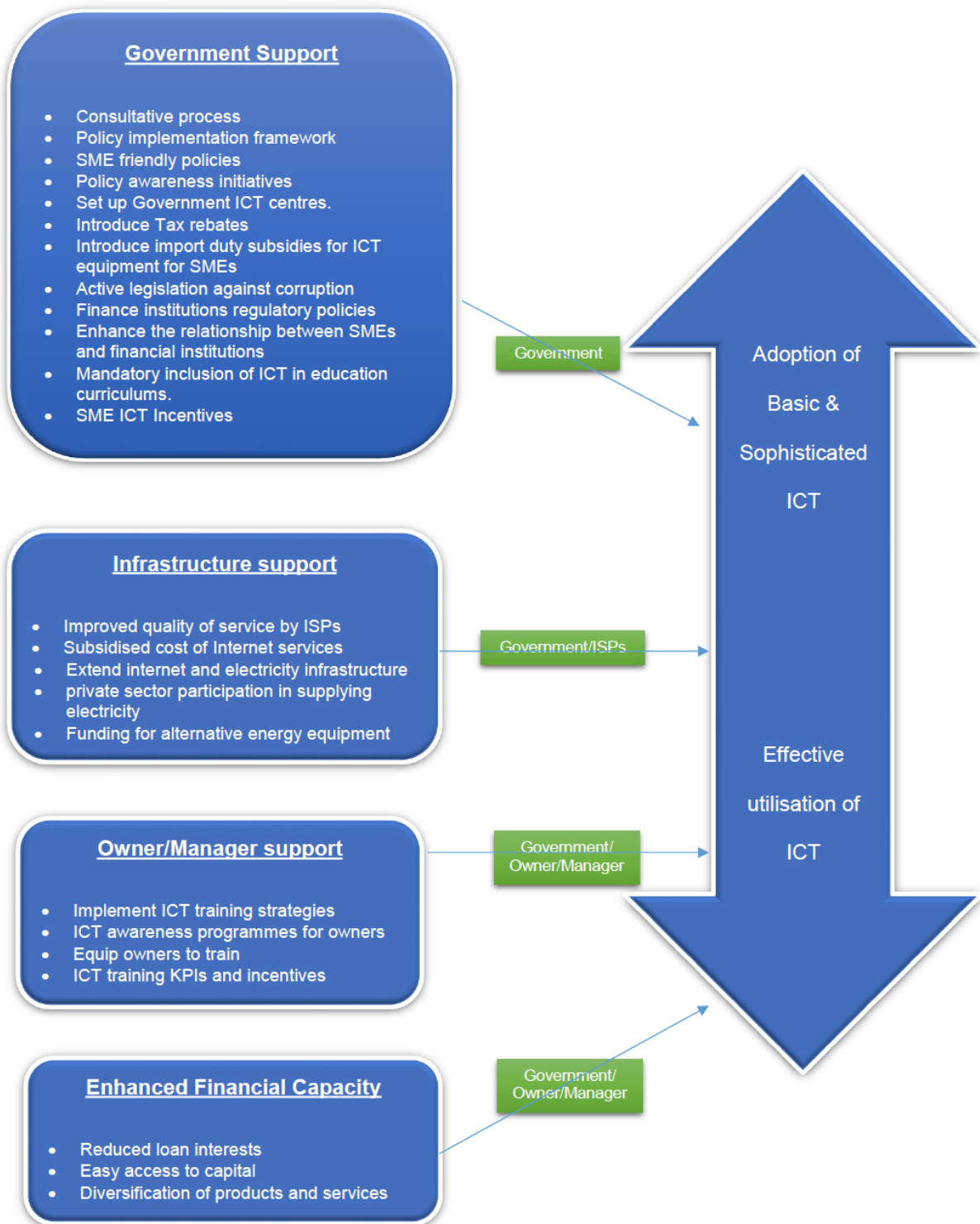
Figure 13 Proposed ICT adoption Framework

5.9 Conclusion

The need for Zimbabwean SMEs to effectively adopt and utilise basic and sophisticated ICT has never been more critical to ensure the survival of these entities. Zimbabwean SMEs play a significant and vital role in the economy, and hence the government and relevant stakeholders ought to effectively play their part to support SME initiatives and facilitate the adoption of ICT within their business processes.

This chapter has discussed key constructs highlighted in the research findings and gave strategic recommendations which facilitated the development of a comprehensive ICT adoption framework for Zimbabwean SMEs. The framework depicts critical constructs that significantly impact ICT adoption in Zimbabwean SMEs. The chapter also discussed the performance impact of ICT on the business operations of Zimbabwean SMEs. The presented framework has the potential to enhance the sustainability and development of Zimbabwean SMEs and facilitate access to an extended market. The effective adoption of the framework will also enhance the competitive edge of SMEs and allow them to compete on a global stage.

The government of Zimbabwe should make an effort to reposition the power sector in order to enhance the supply of electricity in Zimbabwe. It is evident that the main driver of the framework should be the government, who has the mandate to formulate and implement initiatives that will stimulate the effective adoption of ICT within SMEs. Overall, the framework answers the research's main question by identifying the key constructs that make up the ICT adoption model. The next chapter presents a discussion on the validation process that was conducted to validate the constructs presented in the framework.

CHAPTER SIX: RESEARCH VALIDATION

6.1 Introduction

This chapter outlines the validation process for the Zimbabwean SME ICT adoption framework, presented in Chapter Five and the validation results. The designed ICT adoption framework is aligned with the study findings and recommended strategies that facilitate ICT adoption and use for Zimbabwean SMEs. The creation of an enabling and conducive environment enhances SME capacity and encourages them to adopt more sophisticated ICTs necessary to drive subsistence within the sector. It is critical, however, for the ICT adoption framework to be validated before it is disseminated within the sector.

The objective of the validation procedure is to evaluate the soundness and applicability of the ICT adoption framework constructs and to establish the reliability of the proposed recommendations. Validation is critical in revealing the potential reliability and objectivity of the study and outlining a solid background against which the findings of the research   can be generalised. The section below presents an in-depth discussion on validation and the validation method adopted for this study. The details of each validation process are subsequently discussed.

6.2 The notion of validation

According to Kennedy, Xiang, Madey and Cosimano (2015), any framework development process should always be accompanied by validation to ensure the value and reliability of the model. Winter (2011), points out that validation is a contingent construct grounded in research processes and methodologies. Validation confirms the integrity of the research results and confirms if the research measures exactly what it is intended to measure (Golafshani, 2013). According to Brinberg and McGrath (2009), the concept of validation relates differently to the three key domains of research, namely empirical, methodological and conceptual.

Validation in the conceptual domain is defined by evaluating the consistency, effectiveness, adaptability and testability of the constructs used. For the methodological domain, the key areas to be looked at include thoroughness, efficiency

and explicitness. Finally, for the empirical domain, validation would be defined by assessing benefits, relevance and applicability of the findings.

There are some researchers who dispute the applicability of the concept of validation to qualitative studies, however, they still point to the need for a qualifying measure or check for qualitative studies (Golafshani, 2013). Winter (2011), however, ascertains that the validation of qualitative research findings is key to defining the quality of the research.

Brinberg and McGrath (2009), also add that the validation process of a study should have the objective of integrating the empirical, conceptual and methodological concepts and thrive to achieve robustness, value, and fit. Value points to the worthiness of the study, while fit relates to the extent of the match that exists between the various features of the domains.

Lastly, robustness (which is also known as external validity) relates to the generalisability and consistency of the research findings, demonstrated through replication, differentials and convergence (Brinberg & McGrath, 2009; Baily, 1987). Literature reveals that there are two main classifications of validity, namely internal and external (Golafshani, 2013).

6.3 Validation of a framework

The objective of validating a framework is to confirm the appropriateness of the framework in relation to the aim of the research (Frees, 2006). Frees (2006) also adds that the process of validating a framework facilitates the assessment of the ability of the model to achieve its intended objectives. Validating a framework aims to ensure the generalisability and applicability of the framework not only to the research sample but also a wider population (Hair, Anderson, Tatham & Black 1998). Winter (2011), points out that the process of validation assesses the degree to which the framework predicts the performance outcome, whether it is above or below average.

The reliability of the research findings relies on the validation process which is conducted to confirm the findings. The validity of this study's ICT adoption and use framework for Zimbabwean SMEs was realised using both internal and external validity. The framework was developed from the analysis of empirical data extracted

from a qualitative research and hence there is a necessity to test the research results' validity to the wider population of Zimbabwean SMEs.

The validation process ensured that the study had effectively identified the relevant factors that impact SME ICT adoption in Zimbabwe. The validation exercise also assessed the degree to which the recommended constructs in the framework resolved the issues facing the SMEs.

6.3.1 Selection of the validation participants

The researcher took into consideration the three possible avenues for carrying out the validation. These included:

- focus groups;
- interviews; and
- postal surveys.

After careful consideration, the researcher decided to utilise focus groups as this option was cost-effective and the open discussions amongst SME stakeholders under one roof would add value to the framework validation process. A focus group allowed the participants to develop ideas and build on each other's answers, which was not possible during the one-on-one interview setting. Postal surveys would have left no room to clarify points raised and further elaboration, and on the other hand, interviews would have been expensive and there was a lack in verifying issues raised with other SME stakeholders.

The key participants of the validation process were SME stakeholders because of the exploratory nature of the research. This also ensured that the validation process would be based on the experiences of the stakeholders. Sixty randomly selected participants that included owners, managers and employees of SMEs were invited to a two-day workshop held in Harare to validate the proposed ICT adoption framework.

A letter was sent to the participants kindly requesting their assistance in the validation process and highlighting the objective of the study. Participants also included 22 that had participated in the semi-structured interviews. Of the 60 invited participants, six did not manage to make it and the workshop was attended by 54 participants in total.

Each participant represented a single SME hence 54 SMEs were being represented. Key demographic characteristics of the 54 participants are outlined in the tables below:

Industry Sector of participants (SMEs)	Number of participants from sector
Retail	9 (17%)
Manufacturing	5 (9%)
Transport & logistics	4 (7%)
Engineering	4 (7%)
Hospitality	6 (11%)
Legal	4 (7%)
Education	6 (11%)
I.T	3 (6%)
Education	6 (11%)
Finance	3 (6%)
Construction	4 (7%)

Table 13 Industry sector of participants

In total 11 industry sectors were represented with highest number (17%) of participants coming from the retail sector.

SME Location	Number
Rural	6 (11%)
Semi Urban	15 (28%)
Urban	33 (61%)

Table 14 Participants SME location

Most of the SMEs represented are located in urban areas (61%), mostly because it was easier for them to travel to the workshop venue.

Position in SME	Number
Owner	38 (70%)
Manager/Supervisor	12 (22%)
Employee	4 (8%)

Table 15 Participants position in SME

As outlined in Table 15, the bulk of the participants were owners (70%), followed by managers (22%), and lastly other SME employees (8%).

Participants age range (years)	Number
21-30	11 (20%)
31-40	15 (28%)
41-50	12 (22%)
51-60	10 (19%)
61<	6 (11%)

Table 16 Participants age range

The workshop had almost an even distribution of the participants' ages with the 31-40 year age range, boasting the highest number of participants (28%), and those over 61 years having the lowest number of participants at (11%).

The workshop took place at a lodge just outside the Harare CBD from the 9th to the 10th of December 2017. The first day was attended by 30 participants and the next day had 24 participants. The workshop ran for just under three hours each day, from 9am to 12am to accommodate those that would be driving back to other towns. The invitation of previous participants ensured a good response rate as they were already familiar with the research objectives. According to Silverman (2006), respondent validation, where a researcher goes back to the subjects being studied with the study findings for verification, is a key ingredient of the validation process.

The workshop had four key items on the agenda which included:

- welcome and outline of objectives;
- delegates complete questionnaires;
- discussion of recommended strategies and comments on factor; and
- session summary and next steps.

The section below outlines the validation procedure and the conclusions extracted from the findings.

6.4 Validation methods

The methods that were utilised for validation included internal and external validation and the analysis of the participants' responses.

6.4.1 External validation

According to Brinberg and McGrath (2009), the heart of external validation lies in evaluating the research findings in such a way that it enhances the meaning and confidence in the findings. External validation evaluates the robustness and generalisability of the research (Rosenthal & Rosnow, 1991; Fellows & Liu, 1997). External validity in this study was accomplished through the comparison of the research findings with previous similar findings extracted from various studies (Eisenhardt, 1989). This was demonstrated in Chapter Four and Five, where the research findings were confirmed by findings from various related studies.

6.4.2 Participants' questionnaire response

All 54 participants actively took part in the workshop. All questionnaires were completed correctly. Of the 54 participants, 22 were part of the respondents that had participated in the initial interviews. These participants assisted in shedding more light on the details of the research to new participants, especially during session breaks.

The questionnaire included a 5-point Likert-type scale from 1 (strongly disagree) to 5 (strongly agree) (See Appendix C). The questions related to the ICT adoption factors and recommended strategies identified in Chapter 5. Following this session was a 1-hour discussion session where participants raised various comments relating to the factors identified and the recommendations noted in the questionnaire.

All participants freely shared their opinions and it is interesting to note that participants from the interviews seemed more confident and bolder to air their views during the workshops. The feedback received during the workshop was very encouraging as it indicated that the recommendations and findings were representative and relevant. This outcome also points to the view that the study findings and recommended strategies are valid in terms of stimulating ICT adoption and use within Zimbabwean SMEs. The perceptions from the workshop indicate that the developed framework can

help the government and SME owners and managers to enhance ICT adoption within SMEs.

The findings and results of the workshop findings are presented in the tables below. The analysis of the data utilised SPSS 16.0 to highlight the percentage and frequency of the participants' response.

Factor	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Government support	0(0%)	0(0%)	2(3.7%)	3(5.6%)	49(90.7%)
Enabling policy	0(0%)	1(1.9%)	0(0%)	10(18.5%)	43(79.6%)
Tax breaks	0(0%)	0(0%)	6(11.1%)	4(7.4%)	44(81.5%)
Regulations	0(0%)	0(0%)	1(1.9%)	9(16.7%)	44(81.5%)
Subsidies	0(0%)	1(1.9%)	0(0%)	6(11.1%)	47(87%)
Corruption	0(0%)	0(0%)	0(0%)	4(7.4%)	50(92.6%)
Infrastructure	0(0%)	0(0%)	0(0%)	12(22.2%)	42(77.8%)
ICT knowledge/Skill	0(0%)	2(3.7%)	1(1.9%)	5(9.3%)	46(85.2%)
Finances	0(0%)	0(0%)	0(0%)	10(18.5%)	44(81.5%)
Management/Owner support & attitude	0(0%)	5(9.3%)	2(3.7%)	15(27.8%)	32(59.3%)
ICT training	0(0%)	0(0%)	1(1.9%)	10(18.5%)	43(79.6%)
Inferior complex	0(0%)	7(13%)	8(14.8%)	20(37%)	19(35.2%)
Perceived advantage	0(0%)	0(0%)	4(7.4%)	22(40.7%)	28(51.9%)
Complexity	0(0%)	1(1.9%)	5(9.3%)	16(29.6%)	32(59.3%)
Guidance	0(0%)	3(5.6%)	4(7.4%)	18(33.3%)	28(51.9%)

Table 17 Participants responses on Factors

Table 17 above reveals that the participants' responses with respect to the factors that impact ICT adoption, indicate a strong agreement with the research findings. The majority of the participants strongly agreed with the findings with a few disagreeing with some of the findings. It would be interesting to note that the lowest agreement figure was recorded on the inferiority complex, with 72.2% agreeing with the findings and 13% disagreeing. When probed further on the issue of inferiority complex, some

participants pointed out that it's more an issue of lack of knowledge than inferiority. Overall, the results show a clear validation of the research findings. The table below indicates the workshop results with respect to the recommended strategies.

Recommended Strategy	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Consultative process	0(0%)	0(0%)	0(0%)	5(9.3%)	49(90.7%)
Policy implementation framework	0(0%)	0(0%)	10(18.5%)	11(20.4%)	33(61.1%)
SME friendly policies	0(0%)	0(0%)	2(3.7%)	8(14.8%)	44(81.5%)
Policy awareness initiatives	0(0%)	0(0%)	1(1.9%)	9(16.7%)	44(81.5%)
Government ICT centres.	0(0%)	0(0%)	0(0%)	5(9.3%)	49(90.7%)
Tax rebates	0(0%)	0(0%)	2(3.7%)	6(11.1%)	46(85.2%)
Import duty subsidies	0(0%)	0(0%)	0(0%)	2(3.7%)	52(96.3%)
Legislation against corruption.	0(0%)	0(0%)	0(0%)	7(13%)	47(87%)
Policies for micro finance institutions	0(0%)	1(1.9%)	3(5.6%)	14(25.9%)	36(66.7%)
Enhanced SMEs/financial institutions relationship	0(0%)	2(3.7%)	1(1.9%)	10(18.5%)	41(75.9%)
Mandatory ICT training in curriculums.	0(0%)	0(0%)	2(3.7%)	16(29.7%)	36(66.7%)
ICT Incentives	0(0%)	0(0%)	0(0%)	11(20.4%)	43(79.6%)
Enhanced electricity infrastructure	0(0%)	0(0%)	0(0%)	3(5.6%)	51(94.4%)
Revised regulatory and legal framework.	0(0%)	1(1.9%)	1(1.9%)	13(24.1%)	39(72.2%)

Financial subsidies	0(0%)	0(0%)	0(0%)	5(9.3%)	49(90.7%)
SMEs ICT training strategies.	0(0%)	2(3.7%)	3(5.6%)	15(27.8%)	34(62.9%)
Government SME facilitated ICT training	0(0%)	0(0%)	0(0%)	3(5.6%)	51(94.4%)
Owner/managers ICT training	0(0%)	2(3.7%)	3(5.6%)	19(35.2%)	30(55.6%)
Reduced loan interests	0(0%)	0(0%)	0(0%)	5(9.3%)	49(90.7%)
Enable easy access to capital for SMEs	0(0%)	0(0%)	0(0%)	2(3.7%)	52(96.3%)
SMEs product/service diversification	0(0%)	10(18.5%)	6(11.1%)	12(22.2%)	26(48.1%)
Improved ISP quality of service	0(0%)	0(0%)	0(0%)	9(16.7%)	45(83.3%)
Subsidised cost of services for SMEs	0(0%)	0(0%)	0(0%)	6(11.1%)	48(88.9%)
Extend internet infrastructure	00(0%)	0(0%)	0(0%)	7(13%)	47(87%)
Framework ability to guide the government	0(0%)	0(0%)	0(0%)	3(5.6%)	51(94.4%)

Table 18 Participants responses on Recommendations

The results shown in Table 18 above reveal that the participants are in full agreement with the recommended strategies that make up the key constructs of the ICT adoption framework for Zimbabwean SMEs. The above responses indicate that the findings of the research and the recommendations are valid.

It can be observed that the majority of the participants agree with the recommendations brought forward with particularly high percentages for "Easy access to loans", "Government SME facilitated ICT training", "Enhanced electricity infrastructure" and "Import duty subsidies" all scoring above 90%. It can also be further observed that some participants disagreed with the point that product diversification for SMEs could work as a means of increasing revenues which in turn would facilitate additional finances to acquire ICT tools. These participants argued that what they

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required was market expansion and not diversification. The presented results also show that the participants believe the framework will serve as a key guiding tool for the government to boost ICT adoption and use in Zimbabwean SMEs.

6.4.3 Additional comments from participants

During the third session, delegates were given an opportunity to comment on the research findings and recommended strategies that make up the ICT adoption framework. All the participants reiterated the point that this research was long overdue and that the research findings had the potential to drive ICT adoption within the SME sector in Zimbabwe.

> *"The research is quite relevant young man, well done. If brought before the right people it can potentially change the face of the SME sector".*

> *"It's a very good model. We however, wait to see if the government takes on the framework, but it was a very enlightening exercise".*

> *"You will need guts to publish this because some government people are not going to be happy with this. You have exposed that some people are not doing their jobs".*

> *"You know the government is apathetic in nature and it will take some pushing to concretise this framework otherwise they will continue to pay lip service to SME advancement until the next elections then "totangazve" (we start again)".*

> *"The issue of ICT literacy is very critical, that's what the government needs to address first even before unveiling funds to assist because "mari yacho inotambiswa" (the money will be wasted), if the SMEs have no knowledge of what they actually need. So the government should educate SME owners on ICT then the rest will follow".*

Another participant pointed out that SME stakeholders should be more involved in decision making especially with regards to policies and infrastructure development. He also added that the framework needed to be backed up by a regulatory framework that leaves no room for corruption, greed and apathy.

"Awareness and knowledge are at the centre of this framework and should be highlighted in red. In my opinion funding is not the key issue, its knowledge. We need to focus on ICT related training for ourselves and employees and the government should assist".

Another participant also pointed out that SME owners in Zimbabwe should also take responsibility when it comes to ICT and not just wait for the government. There should be an intentional drive from owners to include ICT in their strategies and lean towards employing tech savvy manpower in their SMEs. Overall, the bulk of the comments highlighted that the framework was a good model, representative of what was truly on the ground and relevant in highlighting strategies that can stimulate ICT adoption and use within Zimbabwean SMEs.

6.4.5 Internal validation

The methodological and conceptual domains for this study applied internal validation. According to Brinberg and McGrath (2009), internal validity is the extent to which observed variations in a dependent variable are attributed to independent variable changes. The strength of the internal validity of the design of the research is positively proportional to the researcher's confidence in the research findings (Brinberg & McGrath, 2009). According to Rosenthal and Rosnow (1991), internal validity is the degree of validity of notions made about whether Variable A has an effect on Variable B with plausible rival hypotheses being the primary concern.

Kirk and Miller (2013), point out that internal validation facilitates the assessment of the strength of a framework, including the review of literature. Internal validity has to do with the credibility of the inferences extracted from the research data, whilst external validity is mainly concerned with the generalisability of the research findings (Eisenhardt, 1989; Kirk & Miller, 2013). Despite the reiterated importance of both internal and external validation for validating a research process, there are very few sources that outline in detail the form to be taken by the internal validation process.

For this study, the achievement of internal validity adopted several measures. The most significant measure was sending the research findings and transcripts back to the participants (Eisenhardt, 1989), with the purpose of achieving two objectives. First, it allowed participants to verify the accuracy of the findings and transcripts which

enhanced the descriptive validity of the research and correctly portraying the factual accounts to the participants (Maxwell, 1992). Second, the availing of the transcripts to the participants ensured feedback to the researcher on how he had interpreted the participants' use and adoption of ICT. The feedback from the participants improved the research's interpretive validity (Maxwell, 1992).

Some of this study's findings have been included in international peer-reviewed journal papers and conference proceedings, including the 10th International Development Informatics Association (IDIA2018) conference. It is also significant to point out that the bulk of the arguments and findings of the study were confirmed comprehensively in literature. Even where divergent findings were reported, these were considered in the light of supporting the alternative views.

6.5 Conclusion

This chapter discussed the validation of the ICT adoption framework for Zimbabwean SMEs. Both internal and external validation processes were employed for the study. External validation took the form of a workshop that included various SME stakeholders. Results from the workshop revealed that the framework was well received and is critical for stimulating ICT adoption and use within Zimbabwean SMEs. Individual comments that came through the workshop also highlighted the significance of the framework and its relevance to the SME sector. As part of internal validation, the research transcripts sent back to the participating stakeholders to verify accuracy. The validation process clearly marked the ICT adoption framework as valid. The next chapter outlines conclusions that are based on the validation process. The limitations of the research and further research recommendations are also presented.

CHAPTER SEVEN: CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

This chapter presents the overall research conclusions and recommendations and provides a comprehensive analysis and discussion of the study which facilitated the identification of key strategies that enhance ICT adoption and use in Zimbabwean SMEs. The chapter outlines the research overview and discusses the achievement of the research objectives and questions. The chapter also goes on to outline the researcher's knowledge, method and practice contributions. The implications on policy of the research findings are presented in this chapter and the limitations of the research are also discussed. Finally, the chapter discusses suggestions for further research as well as a summarised outline of the research.

7.2 The research overview

Today's modem business arena has seen an upsurge in the need for efficient business processes and access to information, which has driven ICT adoption and use in all sectors including the SME sector. The bulk of research on ICT in the past decade has mostly focused on developed nations with very few looking at developing countries, in particular, the southern African region. Most studies have also not led to the development of implementable frameworks that governments in developing countries can utilise to drive ICT adoption within SMEs.

In Zimbabwe, a handful of attempts have been made to comprehensively capture the exact SME ICT adoption and utilisation status through empirical findings for the purpose of enhancing the sector (Mpofu and WatkinsMathys, 2011; Tsarwe, 2014; Kabanda, 2014). The reviewed literature in this study revealed that ICT adoption in SMEs in developing countries, particularly in Zimbabwe remains a challenge that has inhibited substantial development within the sector.

The findings of this study, however, have outlined the existing status of ICT use and adoption in Zimbabwean SMEs with the study's report emphasis on SMEs in and around the top five Zimbabwean cities of Harare, Gweru, Bulawayo, Mutare and Masvingo. Samples were carefully selected from a population made up of the SME

sector. The study included an integration and blend of empirical findings, ICT adoption theories, past studies in information systems and ICT adoption for the purposes of addressing the research objectives.

The main objective of this research was to design an implementable framework with the purpose of guiding the government in enhancing ICT adoption in Zimbabwean SMEs. Furthermore, the study also aimed at presenting recommended strategies that the government of Zimbabwe could implement to support and improve ICT adoption in SMEs. This research has also facilitated the identification of key barriers that inhibit effective ICT adoption within the Zimbabwean SMEs. The next section presents a summary of the findings of the research and outcomes.

7.3 Summary of research findings and outcomes

This study has played a substantial role in identifying key constructs that make up an implementable framework for ICT adoption and use in Zimbabwean SMEs. The study revealed the role of the government in stimulating ICT adoption and use within SMEs and key strategies that can facilitate the eradication of challenges faced by Zimbabwean SMEs with respect to the use and adoption of ICT. The research's emergent themes were deducted from participants' responses and reviewed literature on SME ICT adoption and not framed from any theoretical perspective because of the inductive nature of the study. An overview of the findings is outlined below under the research aim and questions subsections.

7.3.1 Achievement of study objectives and questions

The main objective of this study to design an implementable framework to be utilised by the government in enhancing ICT adoption in Zimbabwean SMEs was achieved through the identification of critical factors and strategies that drive ICT adoption in Zimbabwean SMEs and the validation of the framework as a valid tool that can stimulate ICT adoption. The review of literature on ICT adoption confirmed the factors identified in the research findings.

Q1: What role should the Zimbabwean government play in SME ICT adoption?

The first research question looked at what role the Zimbabwean government played in SME ICT adoption. This question was answered as the findings identified critical gaps where the government should be playing a role. Key areas lacking government effective participation include policy awareness, financial subsidies and the provision of a friendly regulatory framework. Evidence from the findings indicated the critical nature of government support to ICT adoption initiatives and SMEs indicated how desperate they are to have their government pay attention to their shortcomings in this area. The findings pointed out that SMEs in Zimbabwe are not aware of government policies, especially those that concern the wellbeing of the SMEs and hence the government should take on the role of policy awareness within the SME sector.

The findings also revealed that the Zimbabwean government lacks a consultative system that facilitates the gathering of key information that would result in the formulation of relevant ICT policies. The research findings further revealed that the role of the Zimbabwean government in enhancing ICT adoption in SMEs should include the provision of subsidies, incentives and financial facilities that enhance ICT adoption within Zimbabwean SMEs. The findings showed that current interest rates for loans and inhibiting requirements are key barriers to the acquisition of ICT tools and hence the government can create an environment where SMEs can have easy access to capital. Finally, the study findings also revealed that the government should play a role in the provision of an enabling infrastructure, particularly electricity and the internet as a means of encouraging SMEs to embrace more ICT tools.

Q2: What are the factors that limit ICT adoption in Zimbabwean SMEs?

The second question sought to unveil the factors that inhibit ICT adoption within Zimbabwean SMEs. The findings identified six critical barriers to ICT adoption within Zimbabwean SMEs. These included financial constraints which were noted as a major source of demotivation for ICT investment. Participants highlighted that they would rather buy more stock with their meagre business earnings than acquire ICT tools.

The lack of ICT knowledge within the SMEs was indicated in the research findings as being a critical limiting factor, with most SME stakeholders lacking the means to apply

ICT tools within their business operations. Electricity constraints were also pointed out as an inhibiting factor, with accessibility and unreliability at the forefront of the issues. Poor internet services, an inferiority complex and a lack of government support were also sighted in the research findings as being barriers to ICT adoption in Zimbabwean SMEs.

Q3: What are the success factors that drive ICT adoption in Zimbabwean SMEs?

The third question addressed the factors that drive successful ICT adoption and use within Zimbabwean SMEs. The research findings revealed that owner/manager support is a critical ingredient in achieving effective ICT adoption. The buy-in of the owner in ICT adoption initiatives is critical to their success. Furthermore, the findings identified staff ICT training as a key motivator of ICT adoption and use in SMEs. Participants pointed out that with relevant training SME stakeholders are able to comprehend the effective use of ICT within their organisations. Finally, SME friendly policies and subsidies were identified from the findings as success factors for ICT adoption and use in SMEs.

Q4: What is the operational impact of ICT adoption within Zimbabwean SMEs?

The fourth question looked at the operational impact of ICT adoption within Zimbabwean SMEs. The research findings revealed three key areas where ICT had an impact on the business operations of ICT. These areas included efficiency where participants attributed the timely and efficient processing of data in various business functions to the adoption of ICT. The second area revealed in the research findings was the reduction of operational costs. The findings show that the use of ICT for various business functions, including communication has led to momentous reductions in operational costs. Finally forecasting, planning and focusing were also identified as areas that ICT plays a critical role, with participants attributing effective planning and forecasting to the use of ICT. The researcher observed that inventory management and project management tools were some of the ICT tools utilised by SMEs in planning ahead.

Q5: To what extent do Zimbabwean SMEs use and adopt sophisticated ICTs?

The final question addressed the use of sophisticated ICT tools within Zimbabwean SMEs. The research findings revealed that some SMEs in Zimbabwe do utilise sophisticated ICT tools, such as accounting systems and SMS platforms. However, the researcher also observed that most SME owners do desire to adopt more sophisticated ICT tools but lack the knowledge within their organisations to do so.

7.4 Research contributions

The following section outlines the key contributions of the research.

7.4.1 Contributions to the body of knowledge

This study has considerably contributed to the existing body of literature and the information systems field through the identification of the shortfalls of past studies with regards to the adoption and utilisation of ICT in developing countries, with specific emphasis on Zimbabwe. The empirical evidence from the study identified key constructs that have the potential to stimulate effective ICT adoption and use within Zimbabwean SMEs. No previous studies have empirically investigated how Zimbabwean SMEs can be stimulated to adopt basic and sophisticated ICT.

There is a shortage of academic articles that focus on the adoption and use of ICT within Zimbabwean SMEs. Hence, this study makes a significant contribution to the existing body of literature, especially the information systems fiel,d as it provides an insight into SME ICT use and business process application in Zimbabwe. The study has also made considerable contributions by identifying the role of the government in a developing country in stimulating ICT adoption within the SME sector. This research is one of the pioneer studies in the field of ICT adoption as it integrates various strategies and constructs into an implementable framework that the Zimbabwean government can use to enhance ICT adoption within Zimbabwean SMEs. This forms the key and central contribution of this study as the development of the framework represents a comprehensive guide for the government of Zimbabwe and is based on empirical evidence.

The study also revealed a dynamic perspective of the factors that drive ICT adoption and use within Zimbabwean SMEs and key strategies that form a critical ingredient in the process of improving ICT adoption in an SME sector. A novel contribution has also been made by this study through the identification of key stakeholders that hold the responsibility of enhancing ICT adoption within Zimbabwean SMEs. The framework presented in this study is a novel taxonomy which can be applied in other similar studies, considering that the validation process shows the framework to be applicable in developing countries due to the homogeneous nature of SME issues.

The validation of recommended strategies and ICT adoption factors critically contributes to the body of knowledge and confirms the government factor in ICT adoption within the SME sector. The further knowledge contribution by the study is revealed through its perspectives on bridging the digital divide within the SME sector, through the identification of the need to enhance the country's infrastructure and improving ICT deployment to marginalised areas in Zimbabwe. The bulk of the literature reviewed in Chapter Two pointed to the lack of knowledge and finances as the major factors affecting ICT adoption in SMEs. However, this study goes on to reveal the critical role of the government in the ICT adoption process which shows that this research outlines a richer view of Zimbabwean SME ICT adoption factors than those presented in previous studies.

7.4.2 Methodological contributions

This research has made a methodological contribution by using the DSR approach to extract the key constructs required for the development of the ICT adoption framework. Previous studies on ICT adoption have employed the conventional research onion approach to their investigation. The triangulation approach enhanced the validity of the research findings. The use of an all-encompassing six-step DSR approach is a pioneering step in the area of ICT adoption which makes a critical methodological contribution.

Further methodological contributions are that the DSR approach entails the combination of various paradigms that take into consideration the interpretivist, positivism and critical theory views and hence result in the creation of innovative and unique solutions that are relevant to the issues under study. This is unlike the bulk of

the studies in the area of ICT adoption that employ either an interpretivist or positivist approach. The use of a focus group for validating the framework makes a methodological contribution through the utilisation of both questionnaires and group discussions during the validation workshops. This multi-method approach employed for the research makes a contribution to methodology within the information systems field.

7.4.3 Practical contributions

This study has also contributed towards practice and policy through the provision of a rich insight into the experiences of Zimbabwean SMEs in light of ICT adoption and use. The experiences are outlined through the various individual responses of the research participants. The analysis of the respondents' perceptions revealed critical areas where the Zimbabwean government needs to take responsibility and be accountable with respect to ICT adoption in SMEs. The findings will benefit SMEs in Zimbabwe as they have exposed key entities and stakeholders that need to play their part in the enhancement of ICT adoption. As a result of this study, policy awareness for SMEs will be improved, enlightening relevant stakeholders on the effect of these policies on SME businesses. The research also pointed out building blocks that the government can leverage on in developing policies that can practically support SMEs in their efforts to embrace ICT.

This study has outlined practical strategies that the government of Zimbabwe can utilise to stimulate ICT adoption and use within the SME sector. This, in turn, will inject life in SME business processes, eradicating poverty and immensely contributing to the country's socio-economic landscape. The contributions and findings of this research are quite timely as the new president of Zimbabwe is calling for all sectors of the government to embrace ICT in enhancing the country's business landscape. The promotion of ICT by the government will facilitate rapid growth and national development, not only in SMEs, but in all facets of the economy.

7.5 Implications of the research

This research has presented an analysis of ICT adoption and use within Zimbabwean SMEs and highlighted the need for ICT enhancement within the sector. In addition, the

findings of the research have key implications that will facilitate the enhancement of ICT adoption through the involvement of the government and other stakeholders. These implications are outlined below.

7.5.1 Implications for practice

With regards to practical implementation, the ICT adoption and use framework outlines key elements and a process that is a guideline for key stakeholders in enhancing ICT adoption and use for Zimbabwean SMEs. The recommended strategies can form the basis for formulating action plans that the government of Zimbabwe can put in place as a step towards implementing the framework. The validation process proved the relevance and usefulness of the recommended strategies for the Zimbabwean SME sector and hence the model can also be adopted by other developing countries for the same purpose of enhancing and stimulating ICT adoption and use within the SME sector. The framework can also assist SMEs that currently utilise ICT, to point out areas where they need to work on to enhance the level of ICT use within their organisations. These areas could also include the SME strategies and staff development policies.

7.5.2 Implications for owners/managers

The findings of this study also have critical implications for SME managers and owners who are driving towards adopting ICT within their businesses. This research sought to enlighten managers and owners on how to get buy-in from employees when driving ICT initiatives. The empirical evidence from this research has revealed the importance of the SME owner/manager's attitude and involvement to the success of ICT efforts within an SME. The findings also highlighted the fact that the support and commitment of SME owners/managers is a key ingredient in realising fruitful results from ICT adoption initiatives.

7.5.3 Implications for policymakers and government

The research implications for the Zimbabwean government and policymakers are steeped in the fact that the findings of the research have brought a much clearer insight

into the *status quo* of ICT use and adoption within the SME sector. The relevant government ministries and policymakers can now use the framework as a guide towards formulation and implementation of relevant policies that will have the desired results for all stakeholders involved. The empirical evidence from this study allows the government and policymakers to review their policies and also put in place measures that eradicate the barriers that SMEs face in adopting ICT.

Overall, the contributions of the research findings and framework are critical for all stakeholders, including the SMEs, government, service providers and owners/managers. It is a relevant study in this present era of rapid innovation and the findings will make a significant contribution towards a literature gap. The developed framework will not only benefit Zimbabwean SMEs but other SMEs in developing countries and the implementation of this model will ensure the development of the SME sector which in turn will result in a considerable contribution towards the country's economy.

7.6 Research limitations

It is important to note that this study did have its limitations. The key limitation of the study lies in the fact that the data collection process depended on the access level granted to the researcher. This means that the research participants could have chosen not to reveal some vital information which could have enhanced the outcome of the research. The outlined framework has also not been endorsed by the Zimbabwean government which poses as a limitation of the study. The study was limited to SMEs that are in and around four major cities in Zimbabwe. However, the researcher believes that the participating SMEs were representative of the bulk of the SMEs in the country whether they are urban- or rural-based. Finally, it might also be important to note that the only interpreter of the research findings was the researcher and hence another researcher could have interpreted the research findings in a different way.

7.7 Recommendations for further study

Recommendations for further study in light of this research includes a retest of the findings in other developing countries within southern Africa. This will assist in pointing

out if the findings have the same impact in other developing countries. The framework validation can also be done in a different context utilising multiple methodologies. A further investigation can also be conducted in a few years' time to expand the framework as other factors can also emerge. Comparative studies in developed nations in Europe and the Americas can also be conducted. The investigation on the level of ICT utilisation in SMEs in comparison to large corporates has also not been done comprehensively, particularly in Zimbabwe and could pose an option for further study.

7.8 Conclusion

Insights from this research have revealed key factors that impact ICT adoption and use in Zimbabwean SMEs. Key identified factors included the role of the government, access to infrastructure, ICT knowledge, access to finances and the support of owners/managers. The study also gave an insight on the benefits that ICT users within the SME sector have received from the application of basic and sophisticated ICT tools. SMEs pointed to efficiency, cost reduction and planning and forecasting as some of the benefits. The research also outlined critical gaps in the Zimbabwean SME ICT journey that would need to be addressed through the involvement of the government.

The research has also presented a comprehensive framework that can guide the government into effectively stimulating ICT use and adoption within the SME sector. The research has fulfilled its objectives and effectively responded to all the questions highlighted at the beginning of the study. The chapter has also outlined key methodology, knowledge, practical contributions and implications set on the foundations of the research findings. Despite the numerous studies on ICT adoption in various countries, none has resulted in a guiding model that drives ICT adoption in Zimbabwean SMEs as this research has demonstrated. In light of the research findings' contribution to the body of knowledge, particularly in the area of ICT adoption and utilisation in SMEs, this study is beneficial to policymakers, academics and other practitioners.

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Interviewee: _____

Organisation Attributes & Background

1. Type of SME and industry sector, background of business a. Type of SME (Micro, Small, and Medium)

    b. Industry sector

    c. Number of years in operation

    d. How long have you been using ICT?

    e. Number of employees

    f. Number of employees working on ICT

    g. Location of SME (Rural/Urban)

    h. Age of owner:
    a), Less than 25   b), 25 – 34 c), 35 – 44 d), 45 or more

2. E mployee skill levels?
3. What products and services do you currently offer to your customers?
4. Please describe the current organisational structure of your company
5. What are your company's goals and objectives?

ICT use in SME

6. Does your company use any form of ICT /Why not

7. Do you feel that ICT is important to your business /Why Not?

8. How many employees work with ICT?

9. Does your company have an IT department?

10. What help have you received from Government on ICT use?

11. Are you aware of any SME biased ICT policies that the Government has put in place?

12. To what extent has your business adopted the use of ICT technology in its operations?

13. Do you feel sufficiently informed on Sophisticated ICTs?

14. How has ICT adoption affected your operational costs?

15. Do you know where to find help on ICT use?

16. Which of the following ICT tools do you currently employ in your company and for what purposes?

(Desktops, Laptops, Printers, Scanners, Internet, Email, Software applications, E- marketing tools, Website, Social Media, Other-What)

17. Are the owners directly and constantly involved in managing ICT aspects of the business?

18. In the Organisation is there a function specifically devoted to ICT management?

19. How many people are directly and specifically involved in ICT management?

20. Is there any ICT training that has been offered or currently offered to employees? [Internal or external]

21. What is the general attitude towards ICT and ICT based innovations in your Organisation?

22. What do you think are the factors limiting ICT adoption and effective usage for your company?

23. How useful would Government support be to your company for using ICT?

24. Would you consider adopting more sophisticated/advanced ICTs in the future?

25. From your point of view, what factors contribute to the success of adopting ICT?

26. Is there anything else you would like to add?

Annexure B - Informed Consent Letter/Form

Dear Sir/Madam,

I am a PhD student at the University of Pretoria, South Africa. I am currently conducting research on Developing and Validating an ICT Adoption Framework for Zimbabwean SMEs. The purpose of the research is to identify guidelines that the Government of Zimbabwe can use to ensure effective ICT adoption in Zimbabwean SMEs. I would be appreciate your participation in an interview on this research. Please express your willingness to contribute to this study by signing the declaration below.

Thank you.

Yours faithfully, Peter J. Makiwa

1   Title of research project: **DEVELOPING AND VALIDATING AN ICT ADOPTION FRAMEWORK FOR SMEs in DEVELOPING COUNTRIES: A CASE OF ZIMBABWE**

2   I ………………………………………… hereby voluntarily grant my permission for participation in the project as explained to me by

Peter J. Makiwa

3   The nature, objective, possible safety and health implications have been explained to me and I understand them.

4   I understand my right to choose whether to participate in the research and that the information furnished will be handled confidentially. I am aware that the results of the investigation may be used for the purposes of publication.

5   Upon signature of this form, you will be provided with a copy.

Signed: _____

Date: _____

Witness: _____

Appendix C- Validation Workshop Questionnaire

ICT ADOPTION FACTORS

The following factors are outlined from the research findings.

1. There is a critical deficiency of Government support as far as ICT adoption is concerned. To what extent do you agree with this finding? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

2. The current Zimbabwean government policies and laws that relate to SMEs are a major constraint to the operation of the small businesses. To what extent do you agree with this finding? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

3. Zimbabwean SMEs are a subject of harsh multiple taxes and levies which is a key factor that impact ICT adoption. To what extent do you agree with this finding? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

4. Restrictive regulations that stifle the existence of an open market for Zimbabwean SMEs is a key factor affecting ICT adoption. To what extent do you agree with this finding? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

5. The lack of government financial subsidies affects ICT adoption within Zimbabwean SMEs. To what extent do you agree with this finding? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

6. Corruption within government ranks is a key hindrance to SME ICT adoption initiatives. To what extent do you agree with this finding? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

7. The lack of efficient electricity and internet infrastructure has remained a major challenge to the adoption and effective utilisation of ICT tools in Zimbabwean SMEs. To what extent do you agree with this finding? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

8. The lack of adequate ICT knowledge is a critical factor that affects ICT adoption and use in Zimbabwean SMEs. To what extent do you agree with this finding? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

9. The lack of adequate financial resources places significant constraints on the adoption and use of ICT in Zimbabwean SMEs. To what extent do you generally agree with this? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

10. The attitude and support of an SME owner/manager has a significant impact on the adoption and use of ICT in Zimbabwean SMEs. To what extent do you agree with this finding? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

11. ICT training for SME organisation members is a critical ingredient that critically affects ICT adoption and use in Zimbabwean SMEs. To what extent do you agree with this finding? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

12. Inferiority complex as another key inhibitor to ICT adoption in Zimbabwean SMEs. To what extent do you agree with this finding? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

13. The expected benefits from ICT are a driver for ICT adoption and use in Zimbabwean SMEs. To what extent do you agree with this finding? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

14. The level of sophistication and complexity of an ICT tool is an inhibiting factor to ICT adoption and use in Zimbabwean SMEs. To what extent do you agree with this finding? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

15. Guidance on the relevant adoption and application of ICT tools in business processes is a critical factor for stimulating ICT adoption and use in Zimbabwean SMEs. To what extent do you agree with this finding? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

SUGGESTED RECOMMENDATIONS

The following recommended strategies have been proposed based on the findings of the research.

1. A consultative system that involves SME stakeholders in policy formulation can facilitate the effective implementation of ICT adoption policies. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

2. The government requires a policy implementation framework or model that facilitates ICT policy execution in the SME sector. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

3. The Zimbabwean government should put in place policies that encourage the development of SMEs. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

4. The government should also put in place tools and systems that enhance policy awareness amongst Zimbabwean SMEs. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

5. It is critical for the government to established ICT centres where SME stakeholders can be equipped on ICT adoption and use. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

6. The government should avail tax rebates for SMEs which will lessen the financial burden on SMEs and encourage them to acquire more ICT tools. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

7. The availing of import duty subsidies particularly for ICT products will enhance the adoption and use of ICT in Zimbabwean SMEs. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

7. The Zimbabwean government should introduce active legislation against corruption including the tracking and punishment of corrupt government officials including raising the awareness on the consequences of corrupt practices. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

8. The government should formulate regulatory policies directed at micro finance institutions to facilitate SMEs financing and monitor interest rates. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

9. The government should enhance the relationship between SMEs and financial institutions and suggest workable funding programmes. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

10. Inclusion of ICT training in education and training institutions curriculums should be made mandatory. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

11. The government should introduce incentives for SMEs who take the initiative to adopt ICT for business processes. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

12. The government should make efforts to expand electricity infrastructure to marginalised areas and prioritise the implementation of new power plants in order to boost capacity. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

13. The government should aid the private sector participation in supplying electricity through a revised regulatory and legal framework. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

14. The government should implement SME financial subsidies for equipment that supplies alternative energy. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

15. SMEs should include ICT strategies in their strategy formulation processes. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

16. The government should facilitate ICT training for SME owners and organisational members. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

17. SME owner/managers should engage in ICT training to enhance awareness and inspire organisational members. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

18. The reduction of loan interest rates for SMEs will boost their financial muscle and encourage ICT adoption. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

19. If SMEs can easily access capital they will be able to invest in more ICT tools for their businesses. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

20. If SMEs diversify their products they will have multiple streams of income which will boost their financial acumen and encourage ICT adoption. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

21. Internet Service Providers should enhance the quality and reliability of their services to enhance ICT adoption in SMEs. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

22. The government should facilitate the provision of subsidised internet services from Internet Service Providers. To what extent do you agree with this recommendation? Please tick one option.

23. The government through POTRAZ should facilitate the extension of the internet infrastructure nationwide. To what extent do you agree with this recommendation? Please tick one option.

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

24. Would you say that the framework is able to guide the government in ensuring ICT enhanced adoption and use in Zimbabwean SMEs?

( ), Strongly Disagree ( ), Disagree ( ), Neutral ( ), Agree ( ), Strongly Agree

THANK YOU VERY MUCH