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Absorptive Capacity and Information Technology Adoption Strategies in Kenyan SMEs

by

Joshua Rumo Arongo Ndiege

Absorptive Capacity and Information Technology Adoption Strategies in Kenyan SMEs

by

Joshua Rumo Arongo Ndiege
(201009123)

Thesis

submitted in fulfilment of the requirement for the degree

Doctor of Philosophy

in

Information Systems

in the

Faculty of Management and Commerce

of the

University of Fort Hare

Supervisor: Prof. Marlien E Herselman
Co-Supervisor: Prof. Stephen V Flowerday

Date when submitted (December, 2013)

ABSTRACT

Although Small and Medium Enterprises (SMEs), arguably, make up a significant part of economic development in many countries, these enterprises have continued to face challenges especially in developing countries like Kenya. With Information Technology (IT) being considered a critical component of the survival of SMEs, many are striving to invest in it. However, a number of these SMEs are still far from realising the full potential of their IT investments. In today's challenging and dynamic business environment, SMEs need to leverage both internal and external knowledge, exploit it to help improve and maintain their competitiveness, and consequently, their survival.

This study has endeavoured to address the IT adoption strategy challenges experienced by SMEs in Kenya and other developing countries, as these have been largely flawed. The study has explored on the way in which these enterprises can build strong Absorptive Capacities (AC) and exploit these to improve their IT adoption processes through a model of AC. To achieve this, a qualitative, interpretive case study research approach was employed in this study.

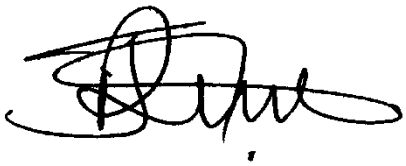
The findings of this study suggest that although AC plays a critical role in the performance of SMEs in Kenya, many of these enterprises have low levels of AC. It also became clear that all the SMEs that participated in the study had not attained maturity in their IT adoption process. However, SMEs that exhibited strong AC employed the use of more superior IT adoption processes than did their counterparts with low levels of AC. From the results of this study an IT Adoption Strategy Improvement Model (ITASIM) has been developed to help SMEs improve their IT adoption strategies. The model focuses on improving SMEs' AC and injecting these alongside the elements of a good strategy in the SMEs' IT adoption process. Furthermore, in order to help in the effective implementation of ITASIM, implementation guidelines have been developed.

Key words: Absorptive Capacity, IT adoption strategy, selected SMEs in Kenya

DECLARATION

I JOSHUA RUMO ARONGO NDIEGE, hereby declare that:

- The work in this dissertation is my own work.
- All sources used or referred to have been documented and recognised.
- This dissertation has not previously been submitted in full or partial fulfilment of the requirements for an equivalent or higher qualification at any other recognised educational institution.
- This dissertation received ethical approval from FRHDC at UFH and further research permit granted by the Ministry of Higher Education, Science and Technology and the National Council for Science and Technology in Kenya (Permit No. NCST/RCD/13/012/35).



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December, 2013

Date: _____

PUBLICATIONS

Journal:

Ndiege, J R, Herselman, M E & Flowerday, S V, SMEs' Absorptive Capacity and Information Technology Adoption Strategies: A Study of SMEs in Kenya, *The African Journal of Information Systems (**Under Review**)*

Ndiege, J R, Herselman, M E & Flowerday, S V, (2012), Absorptive capacity: Relevancy for large and small enterprises, *South African Journal of Information Management* 14(1), 1-9

Ndiege, J R, Herselman, M E & Flowerday, S V (2012), Information and communication technologies within small and medium enterprises in developing economies, *African Journal of Business Management,* 6(10), 3576-3582

ACKNOWLEDGEMENTS

This research project was completed with the support of a range of people and organisations and I would like to express my sincere gratitude and appreciation to them:

- To my supervisors Prof. Marlien E. Herselman and Prof. Stephen V. Flowerday for their support, encouragement and professional guidance through this wonderful journey. Thanks for having faith in me and according me the opportunity to do this doctoral programme.

- To the faculty and staff of the department of Information Systems at UFH, thanks for your support.

- To the SMEs that agreed to participate in this study, thank you for sacrificing your time as participants in this study. To the experts who evaluated and validated the proposed ITASIM, many thanks for your insightful opinions and positive criticism that helped in refining the model.

- To all my colleagues in the doctoral programme, thanks for your friendship and support.

- To Alexa Barnby for professionally proofreading and editing this dissertation.

- Last but certainly not least, my dear wife and best friend Donnah, for her constant support, encouragement and prayers even when the going was tough. You always had faith in me. I owe this to you dear. Thanks for believing in me.

In all these, I give thanks to the almighty God for His grace and for seeing me through this journey. Indeed, in Him all things are possible!

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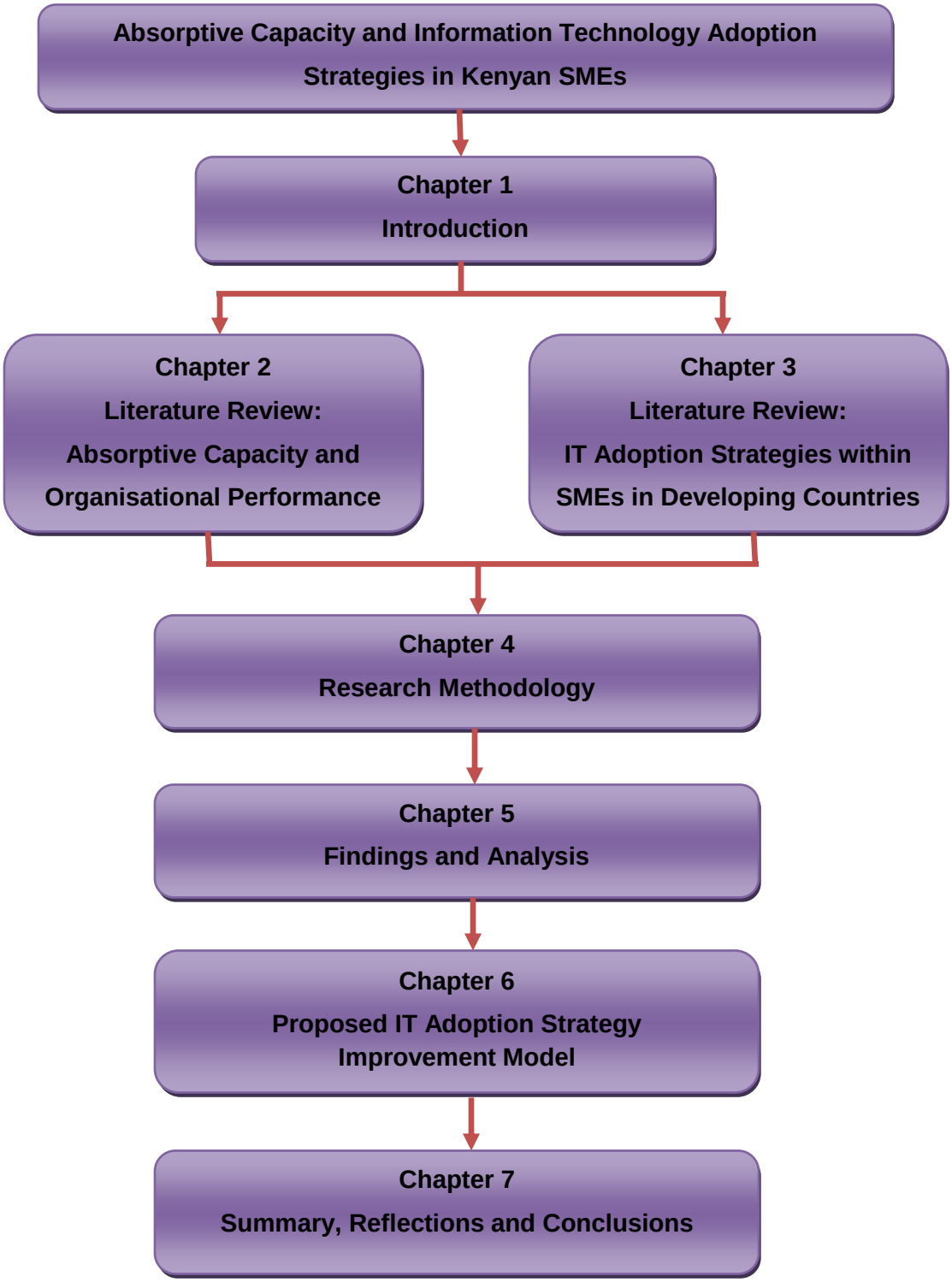
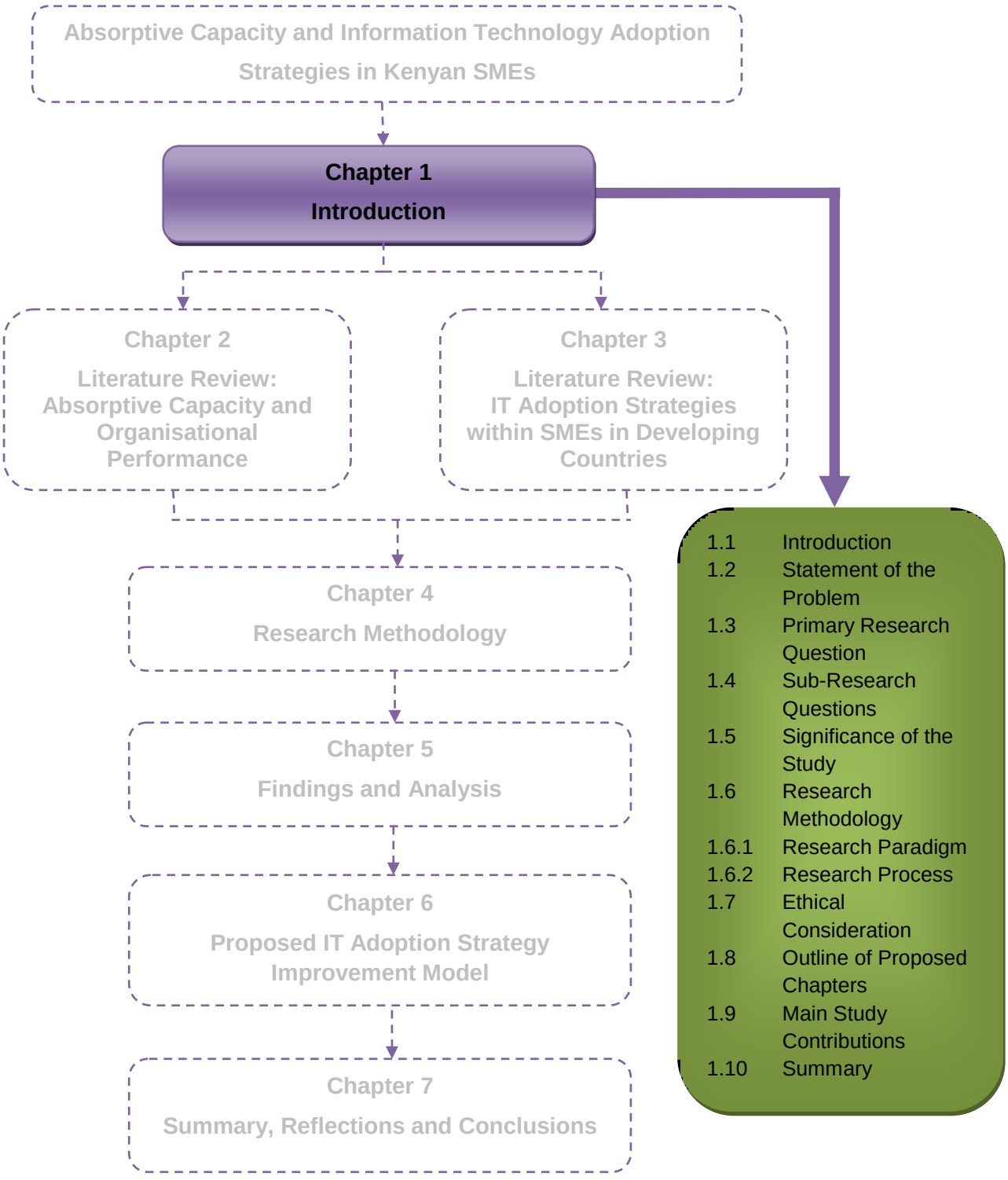
ABBREVIATIONS

AC	-	Absorptive Capacity
AIDS	-	Acquired Immune Deficiency Syndrome
CAQDAS	-	Computer Assisted Qualitative Data Analysis Software
COTS	-	Commercial-off-the shelf
ETR	-	Electronic Tax Register
GDP	-	Gross Domestic Product
IDRC	-	International Development Research Centre
IS	-	Information System
IT	-	Information Technology
ITASIM	-	Information Technology Strategy Improvement Model
KIPPRA	-	Kenya Institute for Public Policy Research and Analysis
KNBS	-	Kenya National Bureau of Statistics
KRA	-	Kenya Revenue Authority
QSR	-	Qualitative Research Software
R&D	-	Research and Development
SDLC	-	System Development Life Cycle
SME	-	Small and Medium Enterprise
SPSS	-	Statistical Package for Social Sciences
TAM	-	Theory of Acceptance Model
TPB	-	Theory of Planned Behaviour
TRA	-	Theory of Reasoned Action
UN	-	United Nations
UTAUT	-	Unified Theory of Acceptance and Use of Technology

DIAGRAMATIC OVERVIEW OF THESIS CHAPTERS



CHAPTER 1 – DIAGRAMATIC OVERVIEW



CHAPTER 1
INTRODUCTION

1.1 Introduction

Absorptive Capacity (AC) theory has emerged as an underlying theme in organisation research (Lane, Koka & Pathak, 2006; Daghfous, 2004). AC can be defined as "the firm's ability to identify, assimilate and exploit knowledge from the environment" (Cohen & Levinthal, 1989, p. 569). We can, therefore, say that AC is the ability of the organisation to acquire, assimilate and take advantage of new knowledge from its environment and apply it to its advantage. With the business environment having changed considerably over the past few years as a result of rapid technological advancements, markets globalisation and increased competition, among other things (Suikki, 2007; Worthington & Britton, 2009; Delimas & Toffel, 2008), firms are compelled to devise ways of responding swiftly to these changes if they are to remain relevant and competitive in this era. The competition is increasingly becoming largely dependent on knowledge as firms increasingly use it to develop better strategies to improve their competitiveness (Scarbrough, 2008; Wang, He & Mahoney, 2009; Higgins & Aspinall, 2011; Uretsky, 2001). Conversely, failures in many businesses have been attributed to their inability to learn and adapt to changes in the business environment (Worthington & Britton, 2009). Studies have indicated that firms that invest in Information Technology (IT) are more productive and well positioned to gain competitive advantage (Stoel & Muhanna, 2009; Sircar & Choi, 2009; Badescu & Garces-Ayerbe, 2009). It can be argued, therefore, that a firm's strategic advantage will largely depend on its effective adoption of IT. For this reason, it is important to ensure that firms that invest in IT use effective IT adoption[1] strategies to ensure the success of such investments.

A number of countries have placed a renewed focus on Small and Medium-sized Enterprises (SMEs) as a driver of economic stability (Asasen, Asasen & Chuancham, 2003; Levy & Powell, 2005). As noted by Kapurubandara (2008), in several parts of the

[1]For the purpose of this study, the term "IT adoption" will be applied to describe a three-stage process: decision making, implementation and evaluation.

world SMEs have revived regions that were in economic decline. SMEs, arguably, play a significant part in economic development in many countries, including Kenya (Macharia, 2009; Kashangaki, 2008; Levy & Powell, 2005; McCormick, Alila & Omosa, 2007). As a result, many initiatives are being put in place to empower these enterprises in improving their competitiveness. In today's challenging and dynamic business environment, SMEs need to leverage both internal and external knowledge, as well as to exploit it, to help improve their competitiveness. The promotion of SMEs in Kenya has continued to remain an important part of the country's development strategy with the government keen on putting more effort into improving the sector (Macharia, 2009; McCormick et al., 2007; Ronge, Ndiragu & Nyangito, 2002). Moreover, the Kenyan government is putting more emphasis on promoting the use of IT within various sectors as a way of realising its Vision 2030 (Republic of Kenya, 2007). Although faced with many challenges, many SMEs in Kenya are slowly beginning to embrace the use of IT to take advantage of the many benefits associated with the investment (Macharia, 2009; Kashangaki, 2008; Moyi & Njiraini, 2005). While SMEs are always scarce in resources, it is important that they understand their knowledge stock, and nurture and improve their AC, in order to help develop an effective IT adoption strategy that will ensure the success of their IT investments.

1.2 Statement of the Problem

Evidence suggests that, while SMEs in developing countries are beginning to embrace the use of IT, few have been successful in this venture and, as a result, many have had to abandon their IT investment initiatives (Kapurubandara, 2008; Macharia, 2009; Puppim de Oliveira, 2008).

Furthermore, despite the various initiatives and the efforts to improve the use of IT within SMEs in developing countries, a number of these SMEs are still very far from realising the full potential of their IT investments (Duncombe & Molla, 2009; Duncombe, 2005; Moyi & Njiraini, 2005). Research has shown that most SMEs in developing countries operate in an unfavourable environment, making it challenging for them to adopt IT effectively (Duncombe & Molla, 2009; Ayyagari, Beck & Demirguc-Kunt, 2007). In Kenya, many SMEs struggle to adopt IT because of the scarcity of capital to invest in

IT solutions and a lack of adequate knowledge for successfully carrying out the IT adoption process (Matambalya & Wolf, 2001; Macharia, 2009; Moyi & Njiraini, 2005). Of those that have managed to acquire IT solutions many have had an uphill task implementing them and, as a result, many such initiatives have stalled or have failed to provide the much anticipated benefits (Macharia, 2009; Moyi & Njiraini, 2005). Furthermore, many of these enterprises are unaware of the internal and external knowledge that they have access to, and how they can use it to improve their IT adoption strategies (Moyi & Njiraini, 2005). The situation could, however, be improved if these SMEs could learn to tap the reservoir of internal and external knowledge available to them.

IT adoption within SMEs and the challenges facing these enterprises in their IT adoption process have been extensively documented and researched (Parker & Castleman, 2007; Duncombe & Molla, 2009). None of these studies, however, has focused on the effect of AC on IT adoption strategies within the SMEs. A few studies have touched on certain elements of AC, but only as a by-product rather than the primary focus of the study (Parker & Castleman, 2007; Roberts, Galluch, Dinger & Grover, 2012; Daud, 2012). Furthermore, there is a thin body of literature on IT within SMEs in developing countries (Parker & Castleman, 2007; Apulu, Latham & Moreton, 2011; Ashrafi & Murtaza, 2008; Duncombe & Molla, 2009; Mpofu & Watkins-Mathys, 2011). In Kenya, however, to the best of the researcher's knowledge there is no known study that looks at the link between AC and IT adoption strategy. This study, therefore, will also aim to fill this gap by trying to establish the link between AC and IT adoption strategies in SMEs.

To address the issues presented in the statement of the problem above, the following primary research question is used.

1.3 Primary Research Question

How can Kenyan SMEs be supported to improve their IT adoption strategies through a model on Absorptive Capacity?

To address this research question, the following sub-questions are used.

1.4 Sub-research Questions

1. How does Absorptive Capacity contribute to the organisational performance of SMEs in Kenya?
2. How effective are the IT adoption strategies employed by SMEs in Kenya?
3. How does Absorptive Capacity influence the choice of IT adoption strategy?
4. Why is the proposed model beneficial for Kenyan SMEs?

The primary objective of the study will be to propose a model that can be used by Kenyan SMEs to effectively harness their ACs to help improve their IT adoption strategies.

In this context, a model is a representation of a part of reality as would be perceived by an individual who desires to apply the model to enable him/her understand, manage, control and change that reality (Arsham, 2006). Arsham observes that a model is created to assist in designing a solution, as well as to aid in understanding a given problem.

1.5 Significance of the Study

A large amount of the existing literature on IT in SMEs is focused on the identification of the barriers to and drivers of IT adoption (Ayyagari et al., 2007; Macharia, 2009; Parker & Castleman, 2007; Tarafdar & Vaidya, 2005). With such saturation, it is important that the research community occupied with IT in SMEs changes its focus to identifying how the SMEs can exploit these drivers to improve their IT adoption and also provide pragmatic solutions to the IT adoption barriers. Furthermore, to the best of the researcher's knowledge there is no known study that attempts to understand the link between AC and IT adoption strategies within the context of SMEs, as these two areas have only been researched in isolation. Martinsons and Davison (2003, p. 114) observe that "there is now a very important need to undertake research that integrates perspectives from different social sciences, particularly in the areas of IT implementation and management".

This study, therefore, will endeavour to fill this gap in research by examining the AC of Kenyan SMEs and how this relates to their IT adoption strategies. The study will thus

help create improved understanding of the Kenyan SMEs' AC and their IT adoption strategies. With such increased understanding, SMEs in developing countries and in Kenya in particular could be helped to make better decisions when preparing for IT adoption.

It is important to note too that many of the studies on IT within SMEs have tended to be heavily biased towards developed countries (Parker & Castleman, 2007; Duncombe & Molla, 2009; Manochehri, Al-Esmail & Ashrafi, 2012); as a result, there is a paucity of literature on SMEs in developing countries. Furthermore, the models proposed by such studies on developed countries are not always practically applicable to SMEs in developing countries. This is because SMEs in developing countries operate within a different policy, regulatory, industry and organisational context. The study will, thus, offer a contextually relevant template that SMEs in developing countries and Kenya in particular can use to gauge and improve their AC as well as their IT adoption process.

With SMEs in Kenya and other developing countries facing numerous challenges as they try to remain relevant and competitive in the current dynamic and competitive business environment, many have started turning to IT solutions to help them stay in the competition (Duncombe, 2005; Duncombe & Molla, 2009; Kapurubandara, 2008; Kashangaki, 2008; Macharia, 2009; Esselaar, Stork, Ndiwalana & Deen-Swarray, 2007). However, there have been more failures than successes recorded by these SMEs in their IT adoption process (Duncombe, 2005; Macharia, 2009; Moyi & Njiraini, 2005; Puppim de Oliveira, 2008; Tarafdar & Vaidya, 2005). This study will endeavour to provide a model that can be employed by these SMEs to help them improve and harness their AC and use it as a tool for improving their IT adoption strategies. Since the proposed model is based on a developing country context, it contains factors and issues that are unique to developing countries and, therefore, the model is practically applicable to other developing countries as most of them share a number of similarities with regard to the policy, regulatory, industry and organisational context (Ndou, 2004; Reinert, 2004). Furthermore, this study may stimulate debate and lead to further work in Kenya and other developing countries.

From the above discussion it is clear that this study has both a scholarly significance and a practical relevance.

1.6 Research Methodology

1.6.1 Research Paradigm

There are primarily two approaches to research. These are qualitative and quantitative approaches. The debate on qualitative versus quantitative research has been extensively documented (Saunders, Lewis & Thornhill, 2009; Mitchell & Jolley, 2009; Creswell, 2003). The difference between the two approaches lies mainly in the epistemology (Mitchell & Jolley, 2009). While the qualitative approach employs the constructionist view as the primary epistemology, the quantitative approach employs the objectivist/positivist view. Constructionists believe that humans construct meaning and meaningful reality. In this stance, the emphasis is on measuring the social world by the use of objective methods such as participative observations or interviews (Thorpe, Easterby-Smith, Lowe & Jackson, 2008). The focus is on finding the meaning of data and the researcher's role is that of an interpreter (Creswell, 2007). This interpretivist notion is also advocated by Orlikowski and Baroudi (1991). Conversely, objectivists/positivists argue that meaning and meaningful reality exist outside human consciousness. In this view the emphasis is on quantifiable observations that lead to statistical analysis (Saunders et al., 2009). Moreover, the objectivists/positivists simplify the phenomenon under study to several variables and assume that other variables will be constant (Leedy & Ormrod, 2009). This could, potentially, lead to an unrealistic and simplistic representation of the phenomenon. As a result certain rich insights might be lost.

The choice of research approach is primarily influenced by the objectives and aims of the study, the availability of time and resources, the philosophical underpinnings and the approach (Saunders et al., 2009). The research questions for this study are explorative in nature. To fully understand the connection between AC and the IT adoption strategy employed by SMEs, one would need to understand the complex interplay between people, technology, politics and other organisational factors. As observed by Myers

(1994), such a process is dynamic and is difficult to model or understand using traditional objectivist approaches. These approaches often attempt to develop fixed, predictive relationships and elements. Moreover, such approaches model how things work, not necessarily why or in what context (Leedy & Ormrod, 2009). A qualitative approach would, therefore, be more appropriate to help achieve such understanding as it would allow the researcher to study the phenomena within their context and enable an understanding of the complex process (Leedy & Ormrod, 2009). Creswell (2007) affirms that qualitative methodologies are mainly applicable to organisations, small communities and description groups. In this regard, this approach would be more appropriate for studying SMEs. Creswell (2007) further explains that a qualitative approach is ideal for addressing the *what* or *how* research questions, as is the case with this study. It should be noted that there is little empirical research in this area of study. As a result, the use of an exploratory investigation employing the use of qualitative approaches would be more suitable. More detail on the research methodology can be found in Chapter 4 of this study

1.6.2 Research Process

In this study a qualitative research design employing a multiple case study approach will be used. The research data will be collected from different SMEs in the major towns of Kenya, namely, Nairobi, Mombasa, Kisumu and Eldoret. The data collection instruments used include interviews, questionnaires, observation, still photos as well as expert reviews. Creswell (2007) observes that the use of a combination of different research instruments is ideal as these instruments reinforce each other. In qualitative research, non-probability sampling is more often preferred (Babbie, 2008). This is because the focus in qualitative research is not on producing a statistical representation or drawing a statistical inference, but rather on providing sufficient description about the context of the sample (Creswell, 2007).

Case studies allow for a deeper study of a phenomenon as opposed to a sweeping statistical survey (Creswell, 2007). Case studies are also ideal when it is not practical to study the phenomenon outside the context in which it occurs (Yin, 2009). In this study, the focus is on AC and IT adoption strategy, both of which will be evaluated within the

context of SMEs. Benbasat, Goldstein and Mead (1987, p. 370) also observe that "a case approach is an appropriate way to research an area in which few previous studies have been carried out".

This provides further justification for the choice of a case study approach as, to the best of the researcher's knowledge, there is no known research that has been conducted in Kenya or any other developing country to evaluate the connection between SMEs' AC and their IT adoption strategy. In multiple case studies several units of analysis are employed. This allows for the collection of large amounts of information from different sources (Yin, 2009). Multiple case study design is considered to be an effective way to produce a richer understanding of the phenomenon (Yin, 2009). Creswell (2007) affirms this, stating that an increased number of case studies deepens the understanding and explanation of a problem. For these reasons, this study adopts the use of multiple case study design to evaluate the AC of, and the IT adoption strategies employed by, SMEs in Kenya.

This research study process will be carried out in a series of four phases. In the first phase, a literature review will be conducted to provide a theoretical framework for the study. During this phase the sample selection will also be made and necessary approvals sought and, finally, the case formation will be provided. The second phase will involve multiple case studies involving the selected SMEs. During this phase, data will be collected using the research instruments chosen for the study. Triangulation of data received from the different research instruments will then be done. Triangulation is a research strategy in qualitative research that is used to assure the completeness of the findings or to confirm the findings (Babbie, 2008). This will also act as a means of testing data saturation. Further, a cross case analysis and conclusions will be drawn based on the outcomes of each case study. In the third phase, the findings and results from phase two, together with the insights from the literature review, will be used to develop a draft model for improving SME IT adoption strategies by exploiting their AC. Finally, in the fourth phase, the model will be reviewed through a series of cycles and modified until a final model is produced through expert reviews.

The figure that follows summarises the research process that is adopted in this study.

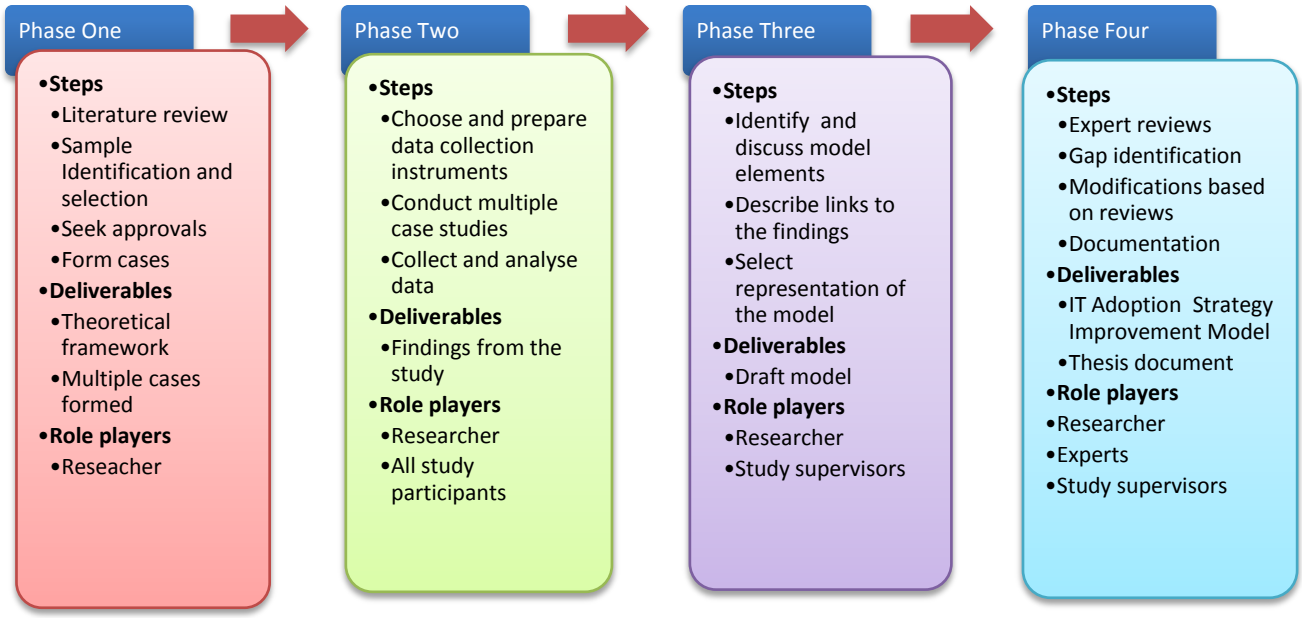


Figure 1-1: Research process

Source: The researcher

1.7 Ethical Consideration

When conducting any research, adhering to ethical norms is of the essence. Research requires team work involving different people; as such, great care should be taken to prevent anyone from being negatively affected by the research work (Saunders, Lewis & Thornhill, 2007). It is therefore the researcher's ethical responsibility to protect the confidentiality of the information and the identity of all the participants in the research activities (Saunders et al., 2007).

In this study it was therefore ensured that all participants' consent was sought before they were involved, and they were fully informed of the purpose of the study (see Appendix B). Further, the confidentiality of the information provided and the anonymity of the participants was assured including those of the SMEs. The questionnaires used were accompanied by a covering letter guaranteeing the participants' anonymity and confidentiality.

Before the commencement of this study, the Faculty Research and Higher Degree Committee at University of Fort Hare reviewed and provided ethical clearance for the study. Furthermore, Ministry of Higher Education, Science and Technology and the National Council for Science and Technology in Kenya (see Appendix A) granted the permission to conduct the study in Kenya.

Section 4.6 of Chapter 4 further elaborates in detail on the measures that were taken to meet the requirements of ethical principles and ensure the confidentiality of the information provided by the study participants and the SMEs recruited to participate in the study.

1.8 Outline of the Proposed Chapters

The organisation of this thesis will be structured as follows:

Chapter 1: This chapter introduces the background to the research, and the research problem. The objectives of the study are spelt out and the significance of the study stated.

Chapter 2: This is the first of the two chapters that provide prior studies from the literature relevant for this research. The chapter focuses primarily on a literature review of AC and a firm's performance. The concepts and terminology of AC are also described.

Chapter 3: This is the second literature review chapter and provides a theoretical lens for examining IT adoption strategies in SMEs in developing countries. The concepts and terminology of IT adoption are also explained in this chapter.

Chapter 4: The research methodology adopted in this study is presented in this chapter. The chapter discusses the epistemology of the qualitative approach used in the study together with justification for the choice of qualitative approach. A presentation is also made on the instruments used to collect data as well as the sample size. The chapter further elaborates on how the collected data was analysed.

Chapter 5: The chapter provides a summary of the research findings and their subsequent analysis. In this chapter research questions 1 to 4 are answered.

Chapter 6: Based on the research findings and the literature review, the proposed IT adoption strategy improvement model (ITASIM) is presented in this chapter. The proposed model is also discussed and research question 5 is addressed. The chapter concludes by addressing the fourth research sub-question and the main research question.

Chapter 7: This chapter presents a summary of the study, and presents a number of reflections, recommendations of the study, future research directions and conclusions.

The summary of this research road map is graphically illustrated in Figure 1-2 that follows.

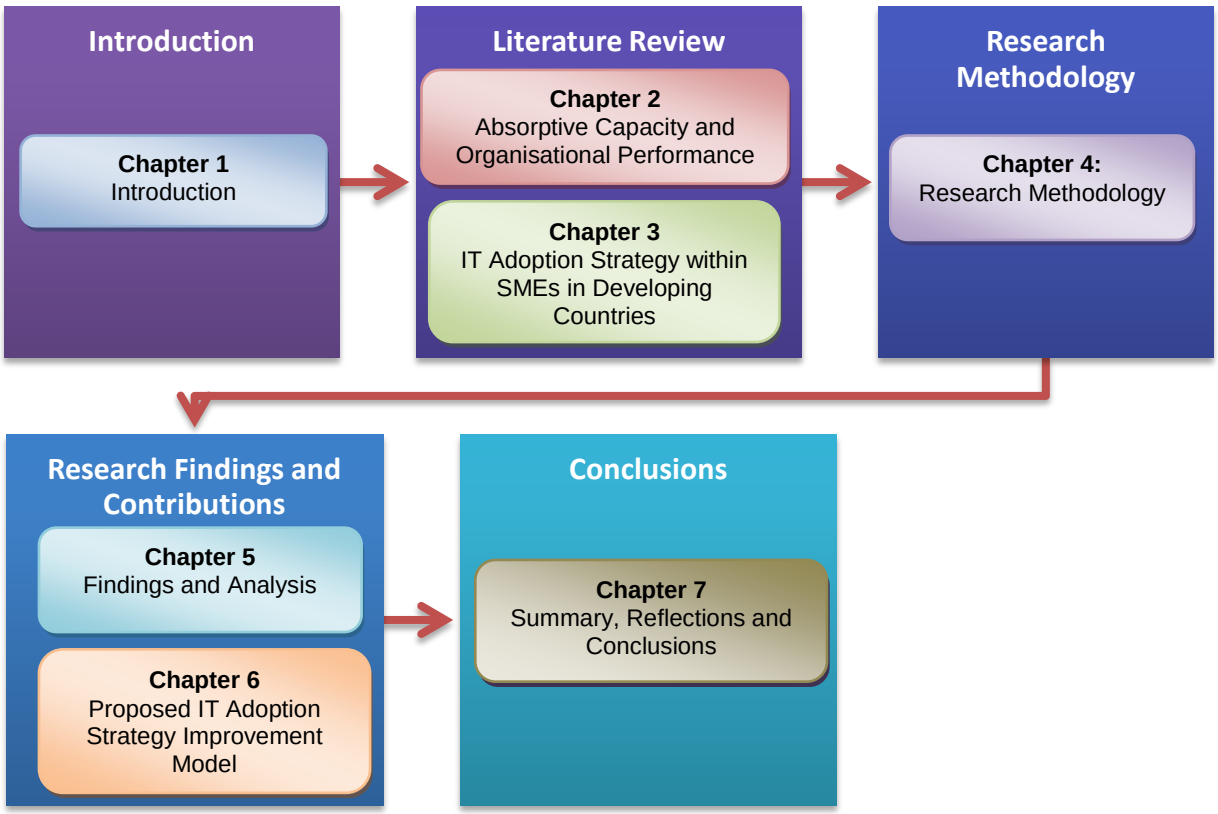


Figure 1-2: Chapters outline

Source: The researcher

1.9 Main Study Contributions

This study has made several theoretical as well as practical contributions. On the theoretical front for example, the study expands the domain of theories related to SMEs, IT, AC and IT adoption. This can be evident in various publications (see pg iii).

On the other hand, one of the major practical contributions to this study is the proposed IT Adoption Strategy Improvement Model (ITASIM) (see Chapter 6). The model exploits the rich elements of AC together with those of a good strategy and carefully injects these into each phase of the IT adoption process, thereby assuring that the process, if effectively carried out, will help the SMEs overcome some of the perennial challenges that have characterized their IT adoption strategies.

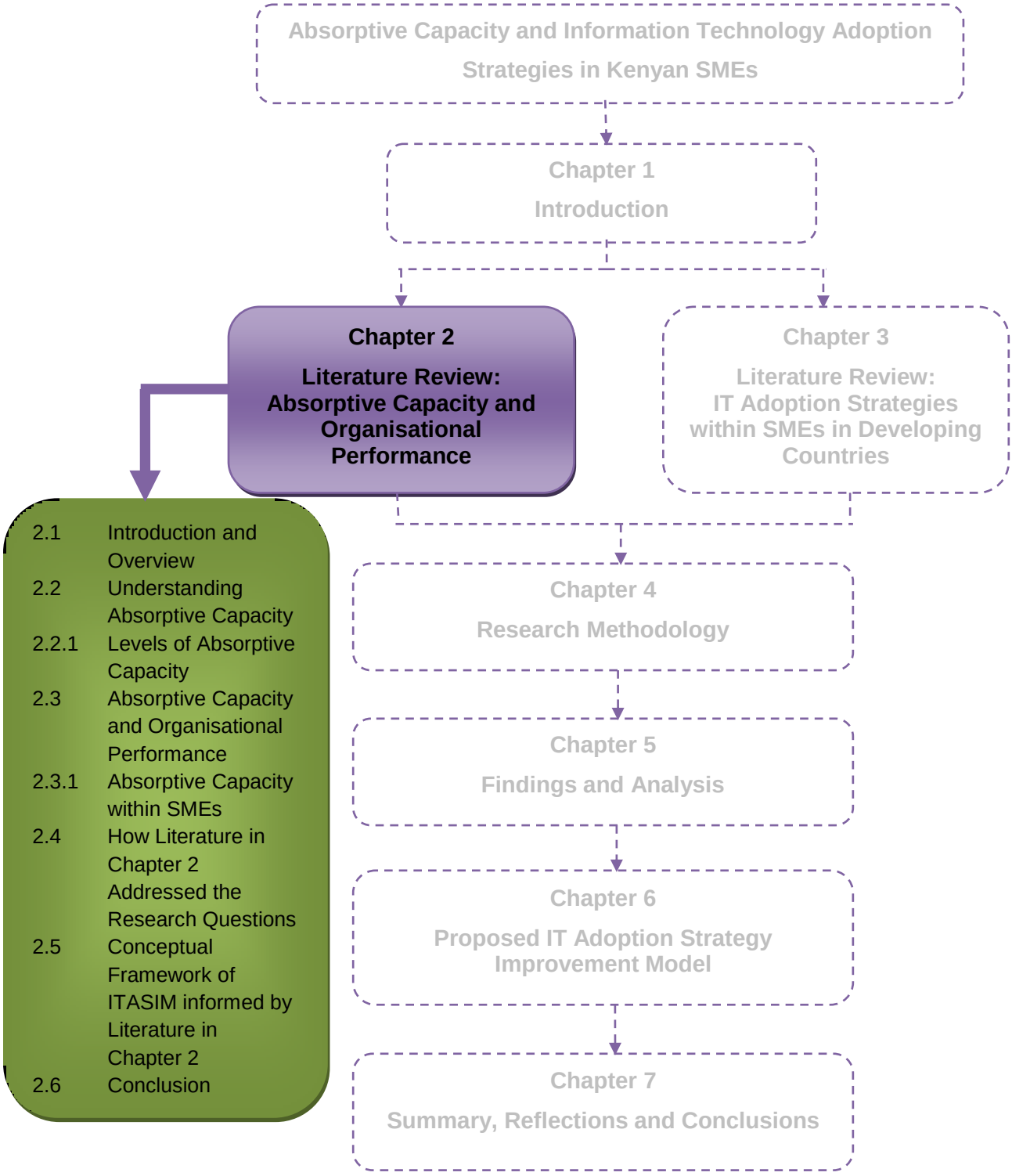
Section 7.4 of Chapter 7 provides more details on various contributions made by this study.

1.10 Summary

This chapter has presented the basis for this study by presenting a case for why the study's principal focus is to examine the ACs and IT adoption strategies of Kenyan SMEs. The primary objective was proposed as being a model that can be used by Kenyan SMEs to harness their ACs to help improve their IT adoption strategies. The research problem has thus been explicitly stated and the questions to be used to address the problem have also been presented.

The chapter also discussed the significance of the study, including a brief description of how ethical matters were addressed and, finally, presented an outline of the chapters contained in this dissertation. Having laid down the foundation for this study, the next chapter reviews the literature on AC and organisational performance.

CHAPTER 2 – DIAGRAMATIC OVERVIEW



CHAPTER 2
ABSORPTIVE CAPACITY AND ORGANISATIONAL PERFORMANCE

2.1 Introduction and Overview

In the previous chapter the research area for this study was introduced and the research objectives stated. This is the first of the two literature chapters for this study. The chapter sets the theoretical base for the study by presenting a literature review on Absorptive Capacity (AC) and organisational performance.

There has been a growing interest in AC over the years in organisational research (Lane et al., 2006; Daghfous, 2004; Chen & Chang, 2012). However, there have been few theoretical and empirical studies carried out over the last decade on AC (Bergh & Lim, 2008; Chen, 2004; Cockburn & Henderson, 1998; Cohen & Levinthal, 1990; Deed, 2001; Gray, 2006; Waalkens, Jorna & Postma, 2004; Zahra & George, 2002). Regarding the progress of the research stream in AC, Murovec and Prodan (2009) and Roberts et al. (2012) observe that AC is still an under-investigated theory. However, a number of scholars and practitioners have continued to cite AC as a significant factor in determining whether an organisation is able to acquire and make use of external knowledge to their advantage (Bergh & Lim, 2008; Lenox & King, 2004; Harrington & Guimaraes, 2005; Schildt, Keil & Maula, 2012). With the dramatic changes in the business environment as a result of technological advancements, increased competition and market globalisation among others, there has been a growing rise in the use of knowledge by organisations to help improve and maintain their competitiveness and, consequently, their survival (Scarbrough, 2008; Higgins & Aspinall, 2011; Cuervo-cazurra & Annique, 2010; Dushnitsky & Shaver, 2009; Uretsky, 2001).

The primary objective of this study is to develop a model of AC that can be used by SMEs to improve their IT adoption strategy. This chapter provides the theoretical lens for understanding various elements of AC that were instrumental in the development of the proposed IT Adoption Strategy Improvement Model (ITASIM), which is based on

AC. Further, the chapter lays the foundation for an understanding of the way in which the evaluation of AC will be carried out by looking at the evaluation instruments and factors that influence AC, consequently laying the basis for addressing the research sub-questions 1 and 3.

This chapter begins by defining AC; the various levels of AC are then presented. The chapter subsequently explores the relationship between AC and the organisation's performance. A presentation is then made on AC within SMEs. Finally, the way in which the literature discussed in this chapter addressed the research questions is indicated, as well as how this literature informed the conceptual framework of the ITASIM.

2.2 Understanding Absorptive Capacity

A number of studies have been carried out on AC in the context of organisation restructuring (Bergh & Lim, 2008); Information Technology (Bi, Yu, Chen & Qi, 2009; Haro-Dominguez, Arias-Aranda, Llorens-Montes & Moreno, 2007; Harrington & Guimaraes, 2005); knowledge management (Saghali & Allahverdi, 2011; Chen, 2004; Tsai & Wu, 2011); service and product innovation (Melkas, Uotila & Kallio, 2010; Nieto & Quevedo, 2005; Stock, Greis & Fisher, 2001); organisational learning (Sun & Anderson, 2010; Schildt et al., 2012); and business performance (Francalanci & Morabito, 2008) among others.

The term AC was originally coined by Cohen and Levinthal (1990) within the field of business strategy. The term is used to refer to the acquisition of new knowledge and the use of this knowledge to improve the organisation's competitiveness (Lane et al., 2006; Daghfous, 2004; Cohen & Levinthal, 1990). Cohen and Levinthal (1990, p. 128) define AC as the organisation's ability to "recognize the value of new information, assimilate it, and apply it to commercial ends". Since the 1990s there have been varied definitions of AC by different researchers. Table 2-1 provides a summary of some of these definitions.

Table 2-1: Definitions of AC

Definition	Author(s)
Ability to recognise the value of new external knowledge, assimilate it and apply it to commercial ends.	Cohen and Levinthal (1990)
A set of skills needed to deal with the tacit part of transferred knowledge and the need to transform this knowledge.	Mowery and Oxley (1995)
Ability to learn and solve problems.	Kim (1997)
Ability of an organisation to learn from another.	Lane and Lubatkin (1998)
Includes evaluation, acquisition, integration, and the commercial utilisation of new external knowledge.	Van den Bosch, Volberda and De Boer (1999)
A set of an organisation's routines and processes used to acquire, assimilate, transform and exploit knowledge.	Zahra and George (2002)
Organisation's ability to learn and act on scientific findings and technological activities outside its limit.	Sun and Anderson (2010)

Source: The researcher

From Table 2-1 it is clear that there is lack of a straightforward empirical measure of AC. In fact, Roberts et al. (2012), in their review of 98 articles within the domain of information systems during the period 1998 to 2008, observed that there has been confusion between the measurement and definition of AC. Lane et al. (2006) submit that this has not only led to minimal research on how AC is developed, but has equally resulted in problems with comparing research results.

It is also clear from the various definitions of AC (Table 2-1) that it is a multidimensional concept that consists of different skills as well as dimensions. Cohen and Levinthal (1990, p. 132) aptly put it that the AC of an organisation is understood in terms of *"*the structure of communication between the external environment and the organization, as well as among the subunits of the organization, and also the character and distribution of expertise within the organization*".* They further observe that AC is largely influenced by the organisation's level of prior related knowledge. That is, without prior related knowledge an organisation will not have the capabilities to learn from the new information gleaned from the external environment. Individuals with diverse knowledge within the organisation enhance the chances that the incoming knowledge will relate to

the existing knowledge base within the organisation (Chen, 2004). At its lowest level, Cohen and Levinthal (1990) view prior related knowledge as including basic abilities or even sometimes just the shared language. However, it can also mean being in touch with current scientific or technological trends in a given field.

AC is a vital connection between the external knowledge and the organisation's performance and its capacity to innovate (Volberda, Foss & Lyles, 2010). AC allows organisations to identify new opportunities and integrate these opportunities into their existing knowledge base within their organisations.

From the preceding discussions and the definitions of various authors, as presented in Table 2-1, it can be concluded that AC is the learning ability that organisations develop to identify the external information and knowledge that is important to them, internalise it and customise it to meet and suit their specific needs and, consequently, take advantage of it for the good of the organisation. Two components thus clearly emerge in what constitutes AC: communication channels within and across the organisation and the common knowledge within the organisation that is shared.

In this study, Zahra and George's (2002) definition of AC is adopted since it takes in the manifestation of the various processes that an organisation would go through to change new knowledge into that which is valuable for application by the organisation. Furthermore, this definition largely takes into account various elements mentioned by other authors in their definition of AC (Table 2-1). Most researchers presented in Table 2-1 have, however, abstracted AC into two main dimensions, namely, external knowledge acquisition and internal knowledge dissemination. However, Zahra and George (2002) have included more discrete dimensions of AC in their definition by decomposing it into four different dimensions:

- **Acquisition.** The ability of an organisation to locate, identify, evaluate and acquire outside knowledge regarded as essential for the survival of the organisation.
- **Assimilation.** The capability of the organisation to analyse, classify, process, interpret and, eventually, internalise and comprehend the external knowledge

through its own routines. The members of the organisation need to interpret and understand the external knowledge to be able to assimilate it and benefit from it.

- **Transformation.** The ability of the organisation to internalise and convert the newly acquired and assimilated knowledge. It is the capacity of the organisation to combine the existing knowledge with the newly acquired knowledge. The result is a new cognitive composition derived from apparently dissimilar sets of knowledge.
- **Exploitation.** This is the capacity of the organisation to bring together the knowledge that has been acquired, assimilated and transformed for organisational application and use. This is considered to be a strategic dimension for the organisation since it produces the outcomes that follow the effort to acquire, assimilate and transform knowledge. It relates to the development of routines that will take advantage of the knowledge for the betterment of the organisation.

Zahra and George (2002) classify the acquisition and assimilation dimensions as potential AC, and transformation and exploitation as realised AC. They submit that potential AC is the ability of an organisation to acquire new external knowledge and assimilate it. Conversely, realised AC is the ability of an organisation to transform the external knowledge and exploit it. While the two concepts (potential AC and realised AC) are closely related, they do refer to different kinds of practices. Potential AC is about learning practices, while realised AC is concerned with operating practices (Zahra & George, 2002).

Figure 2-1 is used to illustrate AC as reconceptualised by Zahra and George (2002).

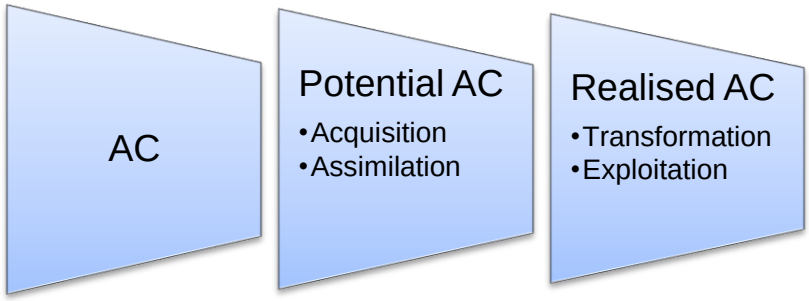


Figure 2-1: AC theory

Source: Adapted from Zahra and George (2002)

Zahra and George (2002) observe that it is imperative that these dimensions of AC are managed in order for an organisation to realise greater performance. Their exposition sufficiently captures the various facets of AC theory and has been widely accepted by several researchers (Francalanci & Morabito, 2008; Chen, 2004; Daghfous, 2004; Haro-Dominguez et al., 2007; Harrington & Guimaraes, 2005; Lenox & King, 2004; Jansen, Van den Bosch & Volberda, 2005).

Brokel and Binder (2007) observe that there are two kinds of knowledge transfer, namely, intended and unintended. When individuals deliberately seek knowledge, the transfer is considered intended; conversely, when they unintentionally obtain knowledge the transfer is considered unintended. Brokel and Binder's view of knowledge transfer is in agreement with Ronde and Hussler's (2005) findings in their study of knowledge flows. The study revealed that deliberate knowledge flows have a more significant influence on innovation than unintended knowledge flow. It is important for organisations not to leave knowledge transfer to take place as a mere coincidence. Accordingly, organisations need to put in place deliberate initiatives to create structures that will facilitate the flow of valuable external knowledge to the organisation.

Organisations with well-developed capabilities for the acquisition, assimilation, transformation and exploitation of new knowledge can therefore be considered as having high levels of AC (Zahra & George, 2002). Such organisations are better positioned and adapted to frequently refurbishing their knowledge base by indentifying

developments in their external environment and internalising such knowledge to sustain their competitiveness.

Nevertheless, there is still a lack of a commonly agreed measure used to adequately assess the organisation's AC (Jansen et al., 2005). Being an intangible asset (Jimenez-Barrionuevo, Garcia-Morales & Molina, 2011), it is more challenging to conceptualise and even to define the dimensions that shape AC. Intangible assets are those that are difficult to evaluate from an accounting perspective (Kinney & Raiborn, 2008) and they have the potential to contribute significantly to sustained competitive advantage as they are not easily imitated by competitors (Teece, 2000). However, Carmeli (2000) also observes that intangible assets are challenging to measure, evaluate and even to determine their existence in the organisations that have them. To this end, AC presents researchers with a potential area of research while simultaneously presenting both theoretical and methodological challenges.

Jimenez-Barrionuevo et al. (2011) performed a comprehensive analysis of the scientific literature on AC and considered various techniques that have been used to measure in AC theory. This is presented in Table 2-2.

Table 2-2: Measurement factors for AC

Author(s)	Measurement used
Becker and Peters (2000)	The existence of one or more of organisation's own R&D laboratories and regularity of internal R&D activities.
Boynton, Zmud and Jacobs (1994)	Knowledge management of IT in business processes.
Chen (2004)	Scale of five items to measure the organisation's ability to assimilate and reproduce the new knowledge obtained from external sources.
Cockburn and Henderson (1998)	The total number of publications based on dollars spent on research annually.
Cohen and Levinthal (1990); Stock et al. (2001); Zahra and Hayton (2008)	R&D effort (R&D expenditure/annual sales).

Author(s)	Measurement used
George, Zahra, Wheatley and Khan (2001)	Expenditure on R&D (to measure the ability to acquire knowledge) and the number of patents (to measure the ability to apply the knowledge).
Heeley (1997)	Scale of 24 items to measure the acquisition of new knowledge from outside the organisation and the dissemination of this knowledge within the organisation.
Jansen et al. (2005)	Scale of 21 items used to measure potential AC (acquisition and assimilation of knowledge) and realised AC (transformation and exploitation of knowledge).
Lane, Salk and Lyles (2001)	Adapted the scales from other related studies and created a new scale of 24 items to measure the comprehension, assimilation and application of knowledge.
Lin, Tan and Chang (2002)	Scale of 15 items used to measure capacity for adaptation, production and application of knowledge.
Luo (1997)	Percentage of technical and professional personnel divided by the total number of employees in the organisation analysed.
Mangematin and Nesta (1999)	R&D expenditure, number of researchers, duration of R&D activities, number of R&D laboratories, links with public research institutes, number of publications, and number of patents.
Mowery, Oxley and Silverman (1996)	Level of technological overlap between the future members of an alliance before the agreement takes place (measured as the number of patents of organisation *j* cited in the patents of organisation *i*/total number of citations present in the patents of organisation *i* before the agreement takes place between organisation *j* and *i*).
Nieto and Quevedo (2005)	Scale of 32 items to measure communication with the environment, the organisation's level of knowledge and experience, the diversity and coincidence of structures of knowledge and strategic position.
Petroni and Panciroli (2002)	R&D effort (expenditure on R&D/annual sales) and the effort of training personnel (expenditure on training personnel/annual sales).

Author(s)	Measurement used
Spithoven, Clarysse and Knockaert (2011)	R&D activities aimed at developing new knowledge and other activities such as knowledge intelligence and knowledge dissemination activities.
Szulanski (1996)	Scale of nine items to measure global Absorptive Capacity.
Thuc, Baughn, Minh Hang and Neupert (2006)	Development of a scale that measures Absorptive Capacity as a multidimensional theory that incorporates organisational issues as well as human capital.
Veugelers (1997)	Existence of the organisation's own R&D departments with full-time personnel.

Source: Jimenez-Barrionuevo et al. (2011)

Taking into account several scales used by researchers to measure AC, Jimenez-Barrionuevo et al. (2011) proposed a scale containing 18 items for measuring AC within organisations.

- Acquisition (potential)
  1. Interaction: There is close personal interaction between the organisation and the external entity.
  2. Trust: The relationship with the external entity is typified by mutual trust.
  3. Respect: The relationship with the external entity is typified by mutual respect.
  4. Friendship: The relationship with the external entity is one of personal friendship.
  5. Reciprocity: The relationship with the external entity is characterised by a high level of reciprocity.
- Assimilation (potential)
  1. Common language: There is a common language between the organisation and the external entity.
  2. Complementary: There is high complementarity between the resources and capabilities of the organisation and the external entity.
  3. Similarity: The main capabilities of the organisation and the external entity are very similar.
  4. Compatibility 1: The organisational cultures of the organisation and the external entity are compatible.

5. Compatibility 2: The operating and the management styles of the organisation and the external entity are compatible.

- Transformation (realised)
  1. Communication: There are many informal conversations in the organisation that involve commercial activity.
  2. Meetings: Interdepartmental meetings are organised to discuss the development and tendencies of the organisation.
  3. Documents: The different units publish informative documents periodically.
  4. Transmission: The important data is transmitted regularly to all units.
  5. Time: When something important occurs, all units are informed within a short time.
  6. Flows: The organisation has the capabilities or abilities necessary to ensure that knowledge flows within the organisation and is shared between the different units.
- Exploitation (realised)
  1. Responsibility: There is a clear division of functions and responsibilities regarding the use of information and knowledge obtained from outside.
  2. Application: The capabilities and abilities needed to exploit the information and knowledge obtained from outside are present.

In this study, AC will be measured as a multidimensional concept, taking into account the dimensions of acquisition, assimilation, transformation and exploitation of knowledge. In other words, the study will measure both the potential and realised AC of the participating SMEs. Since AC is an intangible asset, it may be measured by looking at the internal mechanisms or by focusing on what causes AC to occur (factors that influence it) (Carmeli, 2000). For these reasons, Jimenez-Barrionuevo et al.'s (2011) scale of 18 items is adopted in this study. This choice is also influenced by the fact that the scale is very comprehensive and reflects the richness of AC theory in its totality.

Whereas a number of researchers have applied research and development (R&D) intensity to measure AC (Table 2-2), such an approach is challenging to apply in new and small organisations since such enterprises hardly ever have dedicated R&D staff or

departments (Waalkens et al., 2004). It is, therefore, imperative that alternative indicators are employed to measure AC for new and small enterprises. The scale proposed by Jimenez-Barrionuevo et al. (2011) is therefore more suitable for use in SMEs as most of them do not have dedicated R&D staff or an R&D department. Further, while this scale by Jimenez-Barrionuevo et al. draws from other prominent researchers in this field, such as Jansen et al. (2005), Cohen and Levinthal (1990), Lane et al. (2001), Szulanski (1996) and Zahra and George (2002), the scale was empirically tested using a population of 5,163 Spanish organisations drawn from the automotive and chemical sectors. Therefore, this scale consists of items that have already been empirically tested in other research studies.

AC can be found in the different echelons of an organisation. The next subsection presents different levels of AC that exist within organisations and how they relate to each other.

2.2.1 Levels of Absorptive Capacity

AC has been considered as a multilevel concept that can be found at different levels such as national, industry, inter-organisation, an entire organisation, inter-organisation units, organisation units, and individual levels (Lane et al., 2006; Daghfous, 2004; Bergh & Lim, 2008; Cohen & Levinthal, 1990; Minbaeva, Pedersen & Bjorkman, 2003). Cohen and Levinthal (1990) argue that an organisation's AC depends on the AC of its individual members. This agrees with a general notion that organisational knowledge ultimately exists in the members of the organisation (Felin & Hesterly, 2007). Since knowledge within organisations is possessed by individuals, it is imperative that the organisation establishes the structures necessary for sharing this knowledge in order to enable the optimal utilisation of it within the organisation. However, Malhotra, Gosain and El Saw (2005) caution that the AC of an organisation is not just a summation of the employees' AC, but rather a collaboration among employees that will bring about the exploitation of new external knowledge, thereby producing successful change.

By decomposing the organisation into individual units and the units into employees within it, we can argue that an organisation's AC is determined by the AC of its

individual units, and the units' AC is consequently influenced by the individuals within them (Minbaeva et al., 2003). Figure 2-1 illustrates this inter-relationship.

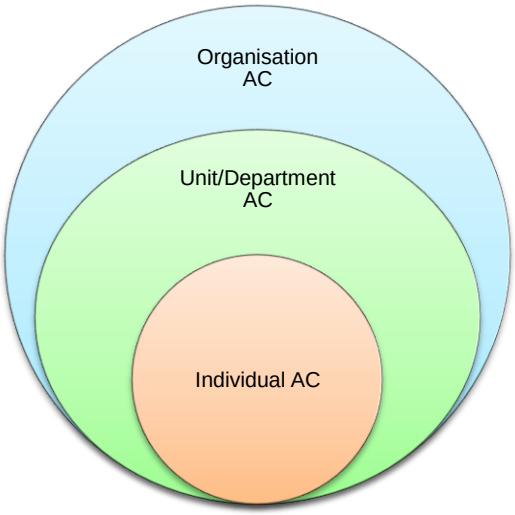


Figure 2-2: Organisation's levels of AC

Source: The researcher

An organisation's AC cannot occur without individual AC (Cohen & Levinthal, 1990), however, individual AC does not equal the organisation's AC. Therefore, to advance the understanding of an organisation's AC, insights into individual AC is important (Volberda et al., 2010). Employees who play a role in the identification, assimilation, application and dissemination of new knowledge are critical for the success of the organisation. For this reason, it is important for organisations to be keen on nurturing the AC of its individual members. Consequently, the presence and richness of knowledge flow structures within the organisation units/departments will determine the success of knowledge transfer within it. The position of an individual within the organisation's overall network of knowledge flow is also instrumental in determining their ability to acquire and assimilate knowledge from elsewhere in the network (Tsai & Wu, 2011). Pinkham, Picken and Dess (2010), however, observe that individuals within organisations are always sceptical about sharing knowledge because they consider it as a tool for wielding power and a form of job security as well as prestige. For these reasons individuals may not be ready to openly share what they know with their colleagues in the organisation (Pinkham et al., 2010).

Communication channels extending both within and outside the organisation need to be well developed. A communication channel is the means by which information is transferred from one point to another within a social system (Easterby-Smith & Lyles, 2005). Therefore, such channels are critical to AC as they are instrumental in enhancing knowledge flow to and within the organisation. Managers within the organisation have the responsibility of developing their organisation's AC by directly providing information to individuals within the organisation who have the potential to adopt new practices (Lenox & King, 2004) and also ensuring that the prevailing environment within the organisation is conducive for the discovery, assimilation and exploitation of valuable practices. The transfer of such knowledge within the organisation can take place through internal seminars, brochures and demonstrations (Lenox & King, 2004).

An organisation's AC does not only rely on its interface with external environments but knowledge transfer within and across the organisation's subunits is also critical. Therefore, to understand the source of an organisation's AC, it is imperative to focus on the communication structures between the organisation and the external environment, as well as among the organisation's subunits, as well as the character of expertise and its distribution within the organisation.

A number of studies have indicated that an organisation's ability to acquire, assimilate, transform and exploit new knowledge is a critical element in ensuring that organisations have a sustained competitive advantage. In the next section a review of the literature on AC and its effect on organisation's performance is presented.

2.3 Absorptive Capacity and Organisational Performance

With the substantial uncertainty created by constant changes in the market, such as changing preferences of customers; diminishing industry boundaries; changing demographics and social values; emerging competition; new technological advancements and other developments, organisations need to respond swiftly and decisively by making significant changes to their core business practices to avoid the risk of decline or failure. Central to the organisation's ability to respond effectively to market demands is well-developed AC.

Previous studies have underscored the significant role played by knowledge and organisational learning in enhancing competitive advantage. Through exploitation, organisations are able to learn how to improve their capabilities, make use of their present knowledge base and pay attention to existing activities in current domains (Holmqvist, 2003). Further, through knowledge routinisation and refinement, exploitation is able to help organisations realise reliability in experience (Holmqvist, 2004). An organisation should be able to recognise, anticipate and consequently take action on market shifts or new technological developments in a manner that is superior to its competitors.

Whereas organisations that engage in exploitation make use of and enhance their competencies, they can also put their energies into exploration and pursue new competencies. Exploration for an organisation involves searching for new routines and discovering new ways of conducting business, as well as new processes, products and technologies (Bi et al., 2009). Wiklund and Shepherd (2003) posit that knowledge-based resources have a direct positive influence on an organisation's performance. Similarly, Darroch (2005) and Daud (2012) discovered that organisations with a sound knowledge base and that manage such resources well make more efficient use of their resources, are better performers and more innovative.

To adapt to the increasingly competitive and constantly changing business environment, organisations need to develop their AC and exploit it to ensure a sustained competitive advantage. Accordingly, organisations are able to renew themselves by exploiting their current competencies and exploring new ones by developing or improving their potential and realised AC. With poor mechanisms for the acquisition, assimilation, transformation and exploitation of knowledge, organisations will be more likely to become lethargic in their responsiveness to market shifts.

A number of studies have been carried out that indicate the connection between AC and organisations' performance. These empirical findings indicate the significant role played by AC in fostering organisations' performance as indicated in Table 2-3.

Table 2-3: Effects of AC on organisations

AC effect on organisation	Illustrative reference
Innovative performance; exploration/exploitation; new product development.	Cohen and Levinthal (1990); Melkas et al. (2010); Schildt et al. (2012); Stock et al.(2001); Tsai (2001); Van Wijk, Van den Bosch and Volberda (2001)
Expectation formation; reactive/proactive strategy formation.	Cohen and Levinthal (1990); Van Den Bosch et al.(1999)
Information systems integration; IT success.	Francalanci and Morabito (2008); Harrington and Guimaraes (2005)
Information quality.	Melkas et al. (2010)

Source: The researcher

Organisations with high AC are always better performers than those with low AC (Deed, 2001). However, organisations' capabilities are disadvantaged by a fixed knowledge base, inflexible capabilities and managerial perceptions that are path-dependent (Tripsas & Gavetti, 2000). Because of this, they do not often succeed in recognising and absorbing valuable external knowledge, resulting in stagnation in their growth and eventually inability to survive in the highly competitive market environment. The AC of an organisation determines its ability to explore and exploit both external knowledge and its existing knowledge base. As a result, AC is a fundamental factor that helps organisations to gain competitive advantage by producing commercial products or services through the transformation of knowledge.

In their study, Teece, Pisano and Shuen (1997) submit that organisations that operate in environments with technological opportunities can benefit more if they have high levels of AC. With technological innovations constantly gaining momentum in the present era, organisations cannot afford to sit still. They need to be alive to the realities of these advancements and be ready and willing to exploit them to improve their businesses. However, the presence of technological opportunities in a given field does not affect all organisations in that field with the same level of intensity. The extent to which organisations exploit such opportunities will largely be influenced by the

knowledge and the capacities it has at its disposal. Organisations that posses a critical mass of knowledge and have the capacity to absorb are the ones that are able to exploit technological opportunities (Nieto & Quevedo, 2005). Therefore, the presence of AC is critical to organisations' efforts to exploit the pool of technological opportunities in their domain.

In comparison with large organisations, SMEs have received less attention in AC research. In the following subsection the literature with regard to AC in SMEs is reviewed.

2.3.1 Absorptive Capacity within SMEs

Since this study focuses on SMEs, it is reasonable to clearly define them and differentiate them from large organisations. Various indicators have been used to define SMEs across the world. Research and literature have also highlighted the definitional problems of SMEs. Accordingly, there is no generally accepted or agreed definition for the term "SMEs" (Culkin & Smith, 2000). Organisations vary in size, location, nature of business, financial performance, maturity and management. These variations make it impossible for various researchers to agree on an objective measure to apply when defining SMEs. The definition of SMEs varies from country to country with different criteria used to classify them in order to address each country's political and economic purposes. The following tables (Tables 2–4 to 2–9) illustrate these differences:

Table 2-4: United Kingdom definition of SMEs

Criteria	Small firm	Medium firm
Turnover	Not more than £2.8 million	Not more than £11.2 million
Balance sheet	Not more than £1.4 million	Not more than £5.6 million
Employees	Not more than 50	Not more than 250

Source: Adapted from Deakins (1999)

Table 2-5: European Union definition of SMEs

Criteria	Micro	Small	Medium
Maximum employee	9	49	249
Maximum turnover	-	€7million	€40million
Maximum balance sheet	-	€5million	€27million

Source: Adapted from Burns (2001)

Table 2-6: Small Business Administration of the United States of America definition of SMEs

Criteria	Very Small	Small	Medium	Large
Number of employees	Less than 20	20–99	100–499	Over 500

Source: Adapted from Megginson, Byrd and Megginson (2008)

Table 2-7: Republic of Tanzania definition of SMEs

Criteria	Micro	Small	Medium	Large
Number of employees	Less than 5	5–49	50–99	Over 100
Capital investment (In millions)	Tsh. 5	Tsh. 200	Tsh. 800	Above Tsh. 800

Source: Adapted from Ngasongwa (2002)

Table 2-8: World Bank definition of SMEs

Criteria	Small	Medium
Number of employees	Up to 50	Up to 300
Total assets	Up to $3 million	Up to $15 million
Total sales	Up to $3 million	Up to $15 million

Source: Adapted from International Finance Group (2010)

Although there is no standard definition of SMEs in Kenya, the Kenya Revenue Authority defines SMEs as:

Table 2-9: Kenya Revenue Authority definition of SMEs

Criteria	Small and medium
Number of taxpayers	Not exceeding 50
Turnover	Not more than £10 million
Assets	Not more than £10 million

Source: Adapted from Kenya Revenue Authority (2008)

From the definitions presented above, it is clear that the general indicators adopted for the definition of SMEs are the number of employees, sales turnover and total assets. The variations in the definitions can make it difficult for researchers to compare different studies on SMEs. In this study, therefore, any reference to SMEs by other authors may range in its definition. For the purpose of this study, however, the Kenya Revenue Authority's (KRA) definition of SMEs is adopted, since Kenyan SMEs will be the focus of the study.

Despite being considered as the drivers of modern economies and thus always indispensable, SMEs still lack proper and adequate application of modern concepts due to their small size (Ayyagari et al., 2007). SMEs often operate under challenging conditions and are further subjected to global pressures from large organisations and demands from customers. As a result, many of them remain unstable and vulnerable. In order to survive in the now highly competitive environments SMEs cannot afford to stand still. They have to be willing and ready to be open to new ideas, new ways of carrying out their operations, and new equipments and tools, and they should develop and have the ability to absorb as well as benefit from these.

SMEs provide an interesting and unique context for exploring AC due to their unique characteristics which separate them from large organisations. For example, most of them have limited resources in terms of finance, expertise and time (Agbeibor, 2006). Furthermore, SMEs tend to rely heavily on the motivations and expertise of its owner/manager. However, SMEs have always been considered to be critical for the growth and development of any economy. Because of this, they will always have a special economic role to play.

Since SMEs are often dominated by their owners/managers (Ayyagari et al., 2007), the SMEs' cultures are easily influenced by their leadership style and personalities (Wong & Aspinwall, 2004). For this reason, the commonly held view that these enterprises have flexible and open cultures should be treated with some caution. This will not hold true if the SME is dominated by an owner/manager who is rigid and inflexible (Wiesner, McDonald & Banham, 2007). To this extent it can be argued that the SME owner/manager plays a central role in ensuring that information flows within and from outside the organisation. Hence, SMEs' AC will almost certainly be influenced to a certain degree by their owners/managers' AC. In their study of SMEs in Iran, Talebi and Tajeddin (2011) revealed that SMEs whose owners/managers and employees had high educational levels, as well as clear growth objectives, had better capacity to acquire, assimilate and make use of new knowledge.

SMEs can use AC for tactical as well as for strategic purposes. For tactical purposes SMEs can use their AC to react to their internal processing needs by using it to revamp their processes. Conversely, SMEs can make use of their AC strategically to create knowledge that can be exploited for strategic planning. A study by Francalanci and Morabito (2008) revealed that SMEs' AC has a mediation effect on business performance.

Some organisations have higher capability to absorb, diffuse and utilise knowledge than others (Cohen & Levinthal, 1990). Organisations with more flexible structures are believed to be associated with greater capacities for knowledge acquisition (Bergh & Lim, 2008). Because of their small size, SMEs are always considered as highly flexible enterprises (Levy & Powell, 2000) and they can exploit this flexibility to their advantage by encouraging knowledge transfer processes. This can be done by promoting the openness of its employees to new external stimuli and encouraging collaboration and exchanges of knowledge within the organisation.

With regard to culture, behaviour and structure, SMEs differ considerably from large organisations. The regular trend in SMEs is social informal networking (Egbu, Hari & Renukappa, 2005) and a flat and uncomplicated structure that is primarily operations-oriented (Wong & Aspinwall, 2004). Such features are certainly conducive for AC to

flourish (Daghfous, 2004). Furthermore, such environments can promote flexibility and adaptiveness which may help to overcome resistance to change and create a better alignment to environmental changes and influences (Wiesner, McDonald & Banham, 2007). Wong and Aspinwall (2004), however, observe that workers in SMEs are mainly generalists who do a number of tasks with a minimal degree of specialisation, which is likely to lead to a lack of deep knowledge. Yao, Othman, Abdalla and Jing (2011) further observe that a number of employees in SMEs are not willing to share knowledge due to the lack of a sense of the benefit of doing so or a lack of reward for such efforts.

Owing to their small size and resource constraints we can expect SMEs to have low levels of AC; a less developed approach towards AC; a lack of awareness of the relevance of AC; and no sound understanding of knowledge acquisition, assimilation, transformation and exploitation processes. Furthermore, those SMEs that tend to practise elements of AC do so in an ad hoc manner, and relegate such ventures to the level of luxuries, with most preferring to adopt the 'wait and see' approach. That is, they wait for large organisations to venture before they can take action (Serenko, Bontis & Hardie, 2007). It is therefore imperative that understanding in this field is progressed for SMEs. This study proposes a model that incorporates the advancement of such an understanding for SMEs (see Chapter 6). In Kenya, the government seems to be striving to fulfil this role by helping SMEs build the ability to study the market environment for technologies that are emerging and to develop the ability to be able to effectively absorb the acquired technology (Nalo, 2008). However, to the best of the researcher's knowledge there has been no research carried out on AC in Kenyan SMEs. There is therefore a need for such research in order to fill this gap in the literature in this field.

The literature review conducted in this chapter was instrumental in addressing the research questions. The next section presents the way in which this was achieved.

2.4 How Literature in Chapter 2 Addressed the Research Questions

The findings of the literature review in this chapter provided the grounding that facilitated the answering of the primary research question and the sub-research questions as follows:

1. The Primary Research Question: *How can Kenyan SMEs be supported to improve their IT adoption strategies through a model on Absorptive Capacity?*

   In addressing this question the literature provided a theoretical lens through which an understanding of AC and the elements that constitute it was enabled (see section 2.2*).* These elements were used in the development of the proposed IT Adoption Strategy Improvement Model (ITASIM) (see section 6.3). Further, the chapter provided insight into AC within SMEs (see section 2.3.1*).* This enabled an understanding of why SMEs more often than not tend to have low levels of AC. With this information the researcher was able to identify the areas that SMEs need to be supported in, in order to be better equipped to enhance their AC and consequently improve their IT adoption strategies

2. Sub-research Question 1: *How does Absorptive Capacity contribute to the organisational performance of SMEs in Kenya?*

   The literature in this chapter provided an exposition of the concept of AC by presenting various elements that constitute AC and the instruments used to measure it (see section 2.2*).* This led into the development of the research instrument that was used to evaluate the AC of the sampled SMEs. The chapter also discussed AC and its effect on organisational performance (see section 2.3*).* This provided the lens that was used to determine how AC contributed to the performance of SMEs in Kenya. Further, by presenting AC within SMEs (see section 2.3.1*)*, it was possible to understand the contextual issues surrounding AC within SMEs. This insight was instrumental as it allowed the researcher to tailor the AC evaluation instrument in order to make it relevant to the SMEs context.

3. Sub-research Question 2: *How effective are the IT adoption strategies employed by SMEs in Kenya?*

   The literature review in this chapter does not directly address this research sub-question. However, it does so loosely by presenting the operational definition of SMEs as well as some unique attributes of this type of enterprise (see section 2.3.1).

4. Sub-research Question 3: *How does Absorptive Capacity influence the choice of IT adoption strategy?*

   Part of this question regarding AC is addressed by the literature in this chapter by providing an understanding of AC (see section 2.2*).* This provided the theoretical lens necessary for determining the mediating effect of AC on IT adoption strategy. The IT adoption strategy element is, however, addressed in Chapter 3.

5. Sub-research Question 4: *Why is the proposed model beneficial for Kenyan SMEs?*

   In order to be beneficial, the proposed model should help the SMEs overcome certain challenges they are confronted with by improving their AC and IT adoption strategies. Section 2.3.1 provided some insights on some of the hurdles faced by SMEs which result in them having low levels of AC. This understanding allowed the researcher to design the model in a manner that would help address these challenges.

Having stated how the literature in Chapter 2 is relevant in addressing the research questions, the next section further exposes the significance of the literature review in this chapter in relation to the proposed ITASIM.

2.5 Conceptual Framework of ITASIM Informed by Literature in Chapter 2

A number of theories have been presented in this chapter in the build up to the overall theoretical base for this study. Some of this theory is critical in the building of the

proposed IT Adoption Strategy Improvement Model (ITASIM), which is based on AC. Table 2-10 shows, at a high level, the various theories from the literature in this chapter that were adopted in the development of ITASIM.

ITASIM is primarily a structural grouping of independent elements which can be viewed in isolation as single process areas. Therefore, each will be focused on independently. The process areas that make up the ITASIM are AC, IT adoption strategy and strategy improvement. In this chapter, the theories presented mainly concern the first (Absorptive Capacity) and the second (strategy improvement) process areas of ITASIM. The third process area (IT Adoption Strategy) of the model is discussed in Chapter 3, which presents theories related to IT adoption strategies and those of strategy improvement.

Table 2-10: Chapter 2 literature informing the conceptual framework of ITASIM

Literature informing the conceptual framework of ITASIM			
Heading from the literature	**Contribution to ITASIM**	**Process area(s)**	**Illustrative reference**
2.2: Understanding AC	Multidimensional concept of the AC, e.g. acquisition, assimilation, transformation and exploitation.	Absorptive Capacity	Cohen and Levinthal (1990); Jimenez-Barrionuevo et al. (2011); Lane et al. (2006); Van Den Bosch et al. (1999); Zahra and George (2002)
2.2.1: Levels of AC	Multilevel concept of AC e.g. organisational AC; unit/department AC and individual AC.	Absorptive Capacity	Bergh and Lim (2008); Lane et al. (2006); Malhotra et al.(2005); Minbaeva et al.(2003) Zahra and George (2002)
2.3: AC and organisational performance	Influence of AC in helping organisations respond to market demands through exploration and exploitation activities.	Absorptive Capacity and strategy improvement	Bi et al. (2009); Cohen and Levinthal (1990); Francalanci and Morabito (2008); Harrington and Guimaraes (2005); Holmqvist (2004); Volberda et al. (2010); Schildt et al. (2012); Wiklund and Shepherd (2003)

Heading from the literature	Contribution to ITASIM	Process area(s)	Illustrative reference
2.3.1: AC within SMEs	Size of SMEs; nature of SMEs and how it influences AC and managerial implications; how SMEs can make use of AC.	Absorptive Capacity and strategy improvement	Ayyagari et al. (2007); Burns (2001); Egbu et al. (2005); Kenya Revenue Authority (2008); Megginson et al. (2008); Nalo (2008); Talebi and Tajeddin (2011); Wiesner et al. (2007); Wong and Aspinwall (2004); Yao et al.(2011)

Source: The researcher

As indicated in Table 2-10, this chapter presented a literature review containing a number of theories that were instrumental in building certain elements of the ITASIM, namely, the AC process area and the strategy improvement process area.

2.6 Conclusion

AC can be considered as the ability of an organisation to successfully carry out a learning process that is characterised by the exploration and exploitation of external knowledge and the organisation's current knowledge base to achieve a competitive advantage. AC is therefore a strong predictor of organisations' performance and, hence, a strategic asset for the organisation. Organisations with high AC are able to learn how to utilise new knowledge within their processes and come up with changes that improve their competitive advantage.

Irrespective of an organisation's size, AC is a critical factor for success. SMEs can use their small size and flexibility to improve their AC as they can adjust and accommodate changes with far less effort than large organisations.

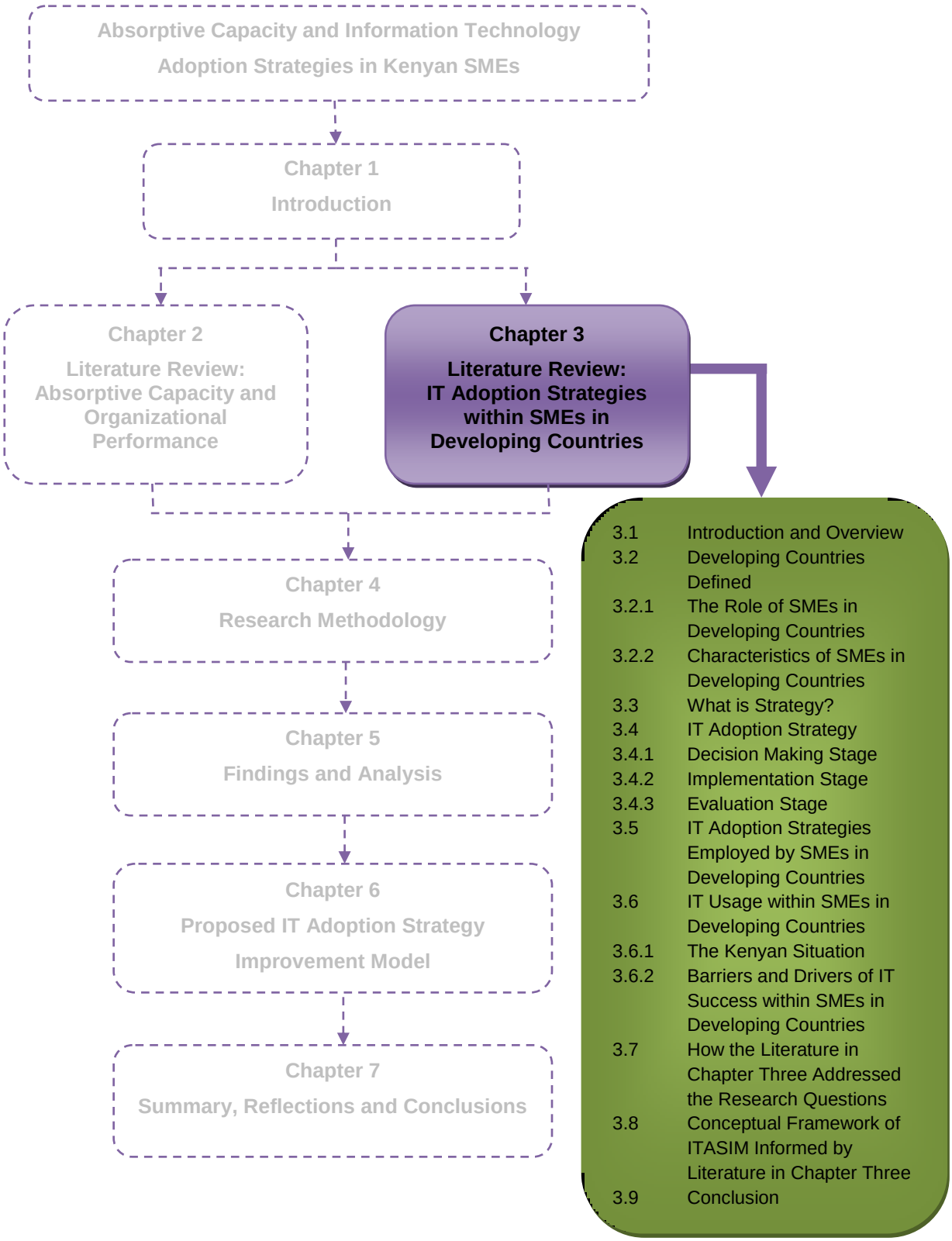
In this study, the AC of SMEs is measured by determining whether they have properly developed capabilities in external knowledge acquisition and assimilation and intra-organisational knowledge transformation and exploitation.

With respect to AC, this thesis is guided by the following argument:

> That the need for AC is no longer a preserve of large organisations, but has become highly relevant for SMEs as well. Accordingly, AC may assist SMEs to develop and apply more effective IT adoption strategies. To the researcher's knowledge, the literature on AC in SMEs has been silent on IT adoption strategy. Previous studies have not considered the mediation effect of AC on IT adoption strategy within SMEs. This does create a gap in past research in this area that needs to be filled. This study undertakes to make a contribution to aid in filling this gap.

In the next chapter, a review of the literature on IT adoption strategies in SMEs in developing countries is presented. This will illuminate the way in which AC can mediate IT adoption strategies. This will, in turn, provide a theoretical foundation upon which the research questions will further be addressed. The chapter will then conclude with a presentation on the way the different theories presented in Chapter 3 inform the building of the theoretical framework of ITASIM.

CHAPTER 3 – DIAGRAMATIC OVERVIEW



CHAPTER 3
IT ADOPTION STRATEGIES WITHIN SMEs IN DEVELOPING COUNTRIES

3.1 Introduction and Overview

In the previous chapter, literature was presented on Absorptive Capacity (AC) and how it influences organisational performance. Various theories were presented that help to shape the proposed Information Technology (IT) Adoption Strategy Improvement Model (ITASIM). This chapter proceeds further with building a theoretical base relevant for the development of the ITASIM by placing the focus on IT adoption strategies with particular emphasis on Small and Medium Enterprises (SMEs) as they are the focus of the study.

Organisations are increasingly motivated to adopt IT in order to enhance the coordination of activities between various organisational departments, and to support and improve decision-making processes with the overall objective of achieving high levels of efficiency and effectiveness. Most SMEs are, however, characterised by poor technology and management competencies (Caldeira & Ward, 2002; Apulu et al., 2011). These challenges result in SMEs lagging behind large organisations in their use of IT. It has been found that SMEs have poor IT adoption strategies because of poor managerial skills and are often sceptical about adopting new technologies (Caldeira & Ward, 2002; Manochehri et al., 2012).

In today's competitive world, IT is expected to contribute significantly in helping the organisation achieve its mission (Elpez & Fink, 2006; Pinkham et al., 2010). With the advances in IT, reduction in trade barriers, and growth in developing countries, globalisation is fast becoming a reality. Aldwani (2001) contends that it is the fastest growing era for businesses. As SMEs have always been considered instrumental in promoting economic growth and stability (Kapurubandara, 2009; Woznica & Healy, 2009), it is no wonder that many governments across the world are starting to pay attention to the needs of these small enterprises in an effort to empower them. As noted by Kapurubandara (2008), SMEs have revived regions which were in economic decline in several parts of the world.

The main study problem for this research is to find out how SMEs in Kenya can be supported to improve their IT adoption strategies by exploiting their AC. By presenting various IT adoption theories this chapter provides the theoretical lens necessary for understanding the IT adoption process employed by SMEs. This leads to the identification of the weaknesses or gaps that exist. Subsequently, this knowledge informed the development of the ITASIM by incorporating various IT adoption theories and also included elements that would help address the current gaps in the IT adoption process. Furthermore, by shedding light on SMEs in developing countries, the chapter enables contextual issues surrounding IT adoption in a developing country environment to be incorporated into the proposed ITASIM, thereby guaranteeing the relevance and usefulness of the model in a developing country context.

The remainder of this chapter is structured as follows: First the term 'developing country' is defined and the role of SMEs in developing countries, together with their characteristics, is presented. The concept of strategy is then presented and the term 'IT adoption strategy' defined and discussed. The chapter then focuses on the IT adoption process employed by SMEs in developing countries. A discussion is then presented on IT usage by SMEs in developing countries. The Kenyan situation is then explored and the barriers and drivers to IT success in SMEs in developing countries are presented. Finally, a presentation is made on how the literature in this chapter helped to answer the research questions and also how it informed the conceptual framework of the ITASIM.

3.2 Developing Countries Defined

It is important to understand the prevailing environments within which SMEs in developing countries operate. This will result in a better understanding of the challenges or opportunities, if any, that SMEs in developing countries are faced with.

Several indicators have been proposed to determine a country's level of development. According to the International Development Research Center (2010), the following five indicators can be used to measure a country's level of development:

- **Literacy, education, and skill**. The availability of education and its level is a good indicator of development. This indicator is also critical for a healthy democracy and for governance to thrive (Todaro & Smith, 2006).

- **Health**. For stable population growth and the ability to function more effectively, the physical health and wellbeing of the population are essential (International Development Research Center, 2010).
- **Income and economic welfare**. High gross domestic product, improved income per capita and high levels of employment are also associated with development (International Development Research Center, 2010; Todaro & Smith, 2006).
- **Choice, democracy and participation**. The political environment can facilitate or hinder development. To attain social goals, strong democratic institutions and good governance are important (Todaro & Smith, 2006).
- **Technology.** The ability to make technological choices and develop technological innovation to meet the needs of a country is also a good indicator of development (Todaro & Smith, 2006; International Development Research Center, 2010).

According to Bannock (2005), developing countries can be considered as those that are yet to attain the growth stage of industrialisation. Such countries are mainly characterised by a lack of public services and people living on far less money as compared to industrialised countries. The World Bank (2010) defines developing countries as low and middle-income countries in which most people have a lower standard of living with access to fewer goods and services than people in high-income countries. Based on this, countries are divided into the following four income groups (World Bank, 2010):

- low income – US$825 or less
- lower-middle income – US$826–US$3,255
- upper-middle income US$3,256–US$10,065
- high income – US$ 10,066 or above.

Low-income and middle-income countries are considered developing countries. According to the World Bank (2010), there are about 125 developing countries. Kenya meets with criteria that make it fall within the category of a developing country. For example (World Bank, 2012; Government of Kenya, 2011; Kenya National Bureau of Statistics, 2011), the literacy and educational levels are low; the country is characterised by a high mortality rate; the country continues to be riddled with health problems

particularly tropical diseases such as malaria and tuberculosis as well as acquired immune deficiency syndrome (AIDS); the country's economy is weak with a gross domestic product (GDP) of about 6 percent; and corruption remains a major challenge for the Kenyan government.

It is worth mentioning here that developing countries are heterogeneous (Sadowsky, 1993; Todaro & Smith, 2006) and the World Bank definition of developing countries does not fully capture the variations. These variations could be in terms of region, government, economic circumstances and a wide range of other factors. As a result of these differences, any study conducted in one country can rightly be contradicted.

Many initiatives have been put in place to help developing countries overcome the challenges they face. Some of these initiatives are crafted within developing countries while others emanate from developed countries (UN, 2009; Chari & David, 2012). Despite these efforts, however, developing countries still face an uphill task in trying to elevate their ranking from developing to developed status. With careful planning, and the harnessing of untapped/underutilised resources within these developing countries, their conditions can be improved.

Focusing on sectors with the potential to address most challenges with minimal effort and resources (since these are more often in short supply in developing countries) would be a perfect way to elevate the poor status of these countries. SMEs are such sectors with the potential to drastically improve the conditions of developing countries (Agbeibor, 2006). The next subsection presents the role played by SMEs in developing countries. This explanation is necessary in order to understand the important role played by these enterprises in sustaining developing countries.

3.2.1 The Role of SMEs in Developing Countries

Developing countries experience numerous challenges (Ayyagari et al., 2007). Accordingly, investing in sectors that can uplift their status would be a good strategy to accelerate their growth. SMEs have been viewed to be such a sector, having the potential to bring about positive change in developing countries; furthermore, the sector can do this with minimal effort and resources (Beck, Demirguc-Kunt & Levin, 2003; Agbeibor, 2006). This is particularly important owing to the fact that developing countries are more often than not lacking in resources.

SMEs can be found in different industries and sectors, domestic and rural locations, as well as in urban and semi-urban areas (Bannock, 2005; UN, 2010). It should be noted that one of the challenges facing developing countries is the unequal distribution of their scarce resources coupled with unequal growth within their regions (Ngasongwa, 2002; UN, 2009; Sanford, 2003). If SMEs were to be well spread out in different industries and sectors, they could be instrumental in ensuring equitable distribution and growth.

A large proportion of the population of developing countries is unemployed (Sanford, 2003; Todaro & Smith, 2006). This means that many are not able to meet their basic needs resulting in increased poverty levels. The research literature has shown that SMEs have larger employment capacities than large firms, and that SMEs account for a significant share of overall employment levels in both developed and developing countries (Tyler & Shah, 2006; Beck et al., 2003; Atkinson & Curtis, 2004; Ayyagari et al., 2007). This can be attributed to the fact that many SMEs are labour intensive (Beck et al., 2003), thereby requiring a large workforce to run smoothly. From this perspective, SMEs represent unemployment alleviation and a poverty eradication tool.

It cannot escape notice that one of the greatest challenges in developing countries is the low economic growth (Agbeibor, 2006; UN, 2001; 2009; Todaro & Smith, 2006). Accordingly, much attention has been paid to the role played by SMEs in economic growth (Agbeibor, 2006; Beck et al., 2003; Burns, 2001; Kapurubandara, 2009). Winter (1995) argues that through the enhancement of competition, SMEs can help realise external benefits on economy-wide efficiency, innovation and overall growth in productivity. Many studies have also suggested that SMEs are instrumental in economic growth and contribute a significant percentage of an economy's gross domestic product (Acs, 1992; Agbeibor, 2006; Bannock, 2005; Burns, 2001; Kapurubandara & Lawson, 2007). These enterprises, therefore, remain critical to the development and economic growth of developing countries. It should also be noted that most large firms usually starts out as a small enterprise (Ayyagari et al., 2007); because of this the viability of SMEs remains essential to any economy with the desire to prosper.

Despite policy frameworks being put in place and a host of initiatives being undertaken to foster the growth of the SME sector (Agbeibor, 2006; Kapurubandara, 2008; Megginson et al., 2008), SMEs are still being hindered by several constraints (Beck et al., 2003; Ayyagari et al., 2007). Some of the challenges experienced by SMEs are also

linked to their unique characteristics (Megginson et al., 2008). SMEs in developing economies operate under deplorable conditions as a result of the prevailing poor environments in their countries (Agbeibor, 2006). It would thus be unfair to assume that the SMEs in developing countries operate under similar circumstances to their counterparts in developed countries. The subsection that follows presents some of the challenges that SMEs in developing countries face. This is of relevance to this study as the focus of the study is on SMEs in Kenya which is a developing country.

3.2.2 Characteristics of SMEs in Developing Countries

In trying to remain relevant and competitive regionally and globally, developing countries are faced with a number of challenges. Accordingly, the environments in which SMEs operate in developing countries do not mitigate the obstacles they are faced with. On the contrary, they present further complications for the SME sector, which means that they have other added characteristics and challenges to those experienced by SMEs in developed countries (Kapurubandara & Lawson, 2007; Kapurubandara, 2008). Some of these characteristics and challenges include the following:

- An unfavourable legal and regulatory framework and, consequently, most of SMEs are unable to comply with the requirements (Kapurubandara, 2008).
- SMEs have limited access to finance (Megginson et al., 2008; International Financial Corporation, 2007).
- They have problems in accessing and processing the information necessary to articulate their objectives and strategies (Tyler & Shah, 2006; International Financial Corporation, 2007).
- They tend to evade any kind of formal registration (Todaro & Smith, 2006; Agbeibor, 2006).
- They often use informal market networks (Agbeibor, 2006; UN, 2009; Ayyagari et al, 2007).
- They have a limited market (Tyler & Shah, 2006; Kapurubandara & Lawson, 2007).
- They experience challenges in terms of participating in international markets (Agbeibor, 2006; Kapurubandara, 2009).

- They are often vulnerable to harassment from criminal gangs and corrupt institutions (McIntyre, 2003; Turner, 2003; International Financial Corporation, 2007).
- They face challenges in recruiting well-trained and qualified staff, and use poor management methods (Kapurubandara & Lawson, 2007).
- They use simple and relatively backward technology (Kapurubandara, 2008; Kapurubandara & Lawson, 2007).
- They operate under unfavourable political, social and cultural settings (UN, 2009; Ayyagari et al., 2007).
- The poor infrastructure in developing economies is unfavourable to their operations (Agbeibor, 2006; International Financial Corporation, 2007).

The challenges faced by SMEs can be broadly classified as internal and external challenges (Burns, 2001; Katz & Green, 2010). The external challenges are outside the realm of the organisation, and there is very little, if any, that the management of SMEs can do to alter them to their advantage. On the other hand, since the internal challenges originate from within the organisation, with careful planning and proper strategy they can be overcome by the management of the SMEs.

Figure 3-1 shows some of the internal and external challenges faced by SMEs.

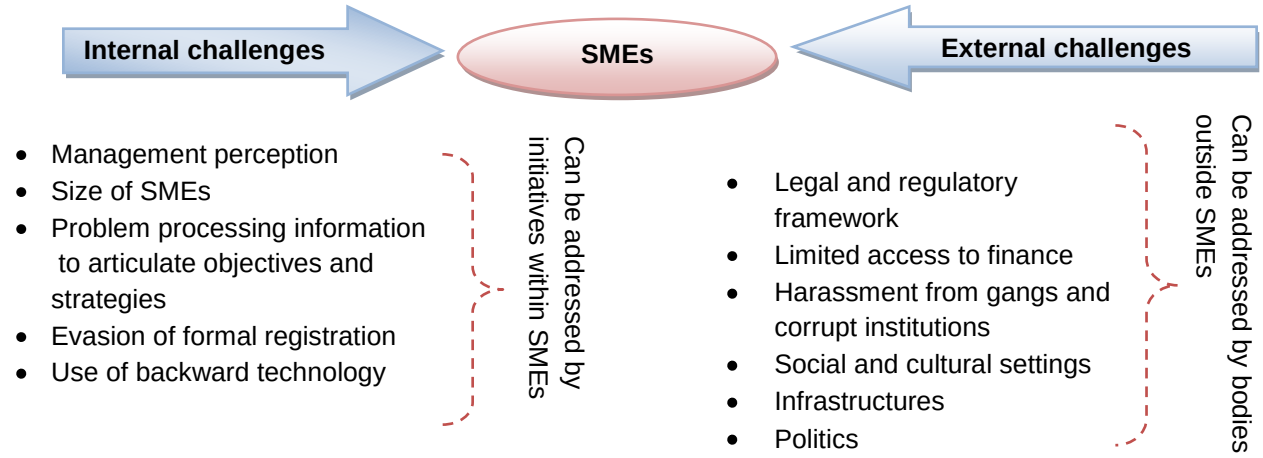


Figure 3-1: Challenges facing SMEs in developing countries

Source: Adapted from Gils (2000)

To be able to address the internal challenges, SMEs need to put in place structures and frameworks that can provide pragmatic solutions to these challenges. Most SMEs in developing economies do not, however, have capacities to adequately address the challenges facing them (International Financial Corporation, 2007; Ayyagari et al., 2007), which makes them highly vulnerable and less competitive.

It is interesting to note that the various characteristics of SMEs are also the cause of some strong or weak aspects of SMEs (Gils, 2000; Katz & Green, 2010). This means therefore, that the weaknesses or challenges faced by these SMEs can be addressed by focusing on the characteristics of SMEs that are associated with those weaknesses/challenges.

Table 3-1 shows the characteristics of SMEs and their associated strengths or weaknesses for SMEs, as outlined by Gils (2000):

Table 3-1: Characteristics of SMEs and associated strengths or weakness

Characteristics	Strengths
Intertwined ownership and management.	Motivated management/commitment.
Integration of tasks in worker variation and improvisation.	Motivated labour.
Few hierarchical levels, short communication lines.	No bureaucracy, internal flexibility, little filtering of proposals.
Few and simple procedures, personal, direct, oral internal communication.	Low costs and little distortion of internal communication.
Personal and close relations with customers .	Capacity for customisation.
Craftsmanship.	Unique or scarce competencies.
Tacitness of knowledge.	Appropriability.
Idiosyncratic perception.	Originality of initiative.
	Weakness
Idiosyncratic perception.	Unopposed misapprehensions.
Tacit knowledge.	Limited capacity for absorption of new knowledge/technology.
Craftsmanship.	Technological myopia.
Few products and markets.	Little spread of risk, limited synergy.
Small volume of production.	Diseconomies of small scale.
No staff functionaries.	Lack of functional expertise.
Lack of managerial time.	Ad hoc management, short-term perspective.
Great authority and many functions in one hand.	Vulnerability to discontinuity of management and staff.
Few layers of hierarchy.	Limited career opportunities.
Low level of abstraction.	Lack of information.
Product or technique orientation.	Errors in marketing and strategy.
Possible lack of finance.	Lack of means for growth.

Source: Adapted from Gils (2000)

By properly understanding the strengths and weaknesses of SMEs, their owners/managers can better position themselves to strategically organise their enterprises to capitalise on the enterprise's characteristics that are a source of their strengths. With proper knowledge of the SME traits that make them vulnerable, the management of SMEs could also be in a position to find optimal ways of addressing these traits.

All organisations do, to a greater or lesser extent, employ the use of strategies to help meet their long-term goals or objectives. While this study is concerned with IT adoption strategy, it is necessary to obtain a clear understanding of the concept of strategy before we try to understand what IT adoption strategy is. This concept is presented in the following section.

3.3 What is Strategy?

Strategy can be defined as a long-term action designed to achieve a particular goal or objective (Porter, 1996). In their analysis of the literature spanning the period between the years 1962, when the concept was first coined, and the year 2008, Ronda-Pupo and Guerras-Martin (2012) made a summative definition of the concept based on this literature as "the dynamics of the firm's relation with its environment for which the necessary actions are taken to achieve its goals and or to increase performance by means of the rational use of resources" (p. 180). We may conclude that the whole idea behind the formulation of strategy by organisations is to be able to devise ways and means in which it can be applied in order to achieve their goals and, consequently, improve their performance.

Success not only requires operational effectiveness but also significantly important is the right strategy. Porter (1996) observes that operational effectiveness is a necessary but not sufficient condition for the success of an organisation. And the same can be said of strategy. Therefore, as indicated in the diagram below, both strategy and operational effectiveness are on an equal level.

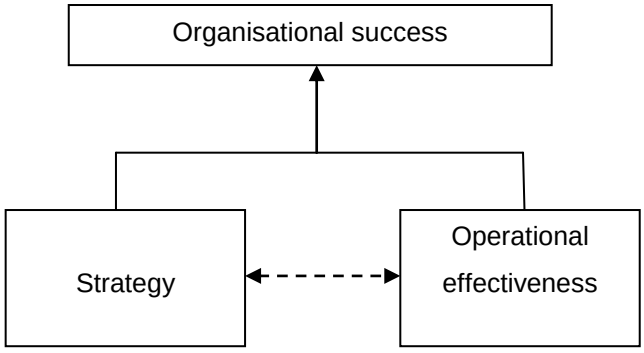


Figure 3-2: Strategy and operational effectiveness

Source: Adapted from Porter (1996)

As shown in Figure 3-2, strategy and operational effectiveness inform each other. Operational effectiveness is achieved when the functions within the organisation work well (Porter, 1996; Levinthal, 2011). These functions comprise organisational skill sets or core competencies (Levinthal, 2011) and, therefore, they must work together and fit together to implement the organisational strategies. Conversely, organisational

strategies are constrained by the available skill sets that can be employed to implement them (Porter, 1996). Operational effectiveness also has the potential of creating an avenue for building strategy through the invention of technologies or methods.

Not every strategy can pass the test of effectiveness. There are certain essential elements that must be inherently present in a strategy in order for it to be considered a good one. Table 3-2 provides a summary of these important elements.

Table 3-2: Essential elements of an effective strategy

Element	Illustrative reference
Is one that is well understood and shared within the organisation.	Kiechel (2010); Mintzberg, Ahlstrand and Lampel (2001); Oliver (2001); Porter (1996) and Rollert (2011)
Is flexible enough to enable change in the direction of the organisation so as to reflect changes in the environments.	Chaharbaghi (2007); Dess and Miller (1993); Grant (2008); Mintzberg and McHug (1985); and Porter (1996)
Is a result of different inputs from a diverse group of stakeholders.	Eisenhardt (1999); Grant (2008); Hambrick and Fredrickson (2001); Mintzberg et al.(2001)
It follows a careful and insightful analysis of external environment and organisational internal capabilities.	Chaharbaghi (2007); Levinthal,(2011); Micheli, Mura and Agliati (2011); Napier, Sidle and Sanaghan (1997); and Porter (1996)
It exploits areas where the organisation has competitive advantage.	Kiechel (2010); Markides (2004); Herrmann (2005); and Porter (1996)

Source: The researcher

Therefore, an effective strategy should contain a mix of each of the elements indicated in Table 3-2. The proposed IT Adoption Strategy Improvement Model (ITASIM) in its strategy improvement process area (see section 6.3.4.1) advocates for the inclusion of the elements in Table 3-2 as one way of injecting effectiveness in the IT adoption strategy being employed by SMEs.

IT adoption strategy involves a number of stages that an organisation will need to go through in order to adopt IT successfully. The next section explores IT adoption strategy.

3.4 IT Adoption Strategy

Three definitions of IT adoption can be identified in the literature. The variations stem from the varied use of the term within the stages of IT adoption. IT adoption is commonly applied to describe a three-stage process (Sharma & Bhagwat, 2006; Russell & Hoag, 2004; Rogers, 1995; Thong, 1999; Laudon & Laudon, 2009):

- first, the **decision making stage**, when information about the desired IT is collected, evaluated, and the decision to adopt IT is made
- second, is the **implementation stage**, when the IT components are installed and consequent usage of the technology
- third, the **evaluation stage**, when the IT solution that was implemented is evaluated.

Strategies, as indicated in section 3.3, imply that an organisation's approach to IT adoption needs to be planned in advance. Different approaches/strategies may be adopted by an organisation in their effort to embrace IT. Therefore, IT adoption strategy should ideally involve the three processes: decision, implementation and evaluation. There may be variations in the manner by which an organisation might approach these stages and this will bring about variations in the results. Nevertheless, an IT adoption strategy should outline how the decision to adopt or not to adopt is going to be arrived at; if the decision is to adopt IT, how the implementation is going to be carried out; and, finally, how the evaluation process will be done to ensure the continued relevance of the adopted IT to the organisation. These stages are explored in the following subsections.

3.4.1 Decision-making Stage

During the decision-making stage SMEs should evaluate their need for IT. They should explore the possible benefits and the associated costs of such investment (Lang, Wojtkowski & Wojtkowski, 2009). In other words, they need to conduct an impact analysis by carefully studying the impact of IT on their business, customers, suppliers and competitors. They also need to consider the availability of support from vendors, consultants and government agencies (Burns, 2001). Equally important at this stage is whether they have complied with government policies concerning IT use (Burges, 2002).

Moreover, the essential features desired from the IT solution should be made clear. Ideally these should be identified through a more organised process of requirement engineering that involves the elicitation, analysis and validation of requirements (Grady, 2006). The output of the requirements engineering process is a requirement specification document that spells out various features of the IT product that are required by the SME (Grady, 2006). While such a list of requirements is likely to be long, because of the scarcity of resources it is important that SMEs prioritise their needs so that they prioritise what is critical to them and perhaps consider other requirements when they have more resources to spare. Studies have indicated that in most cases SMEs consider IT products for automation particularly in the initial stages of embracing the technology (see section 3.5).

Finally, before concluding this process, SMEs need to evaluate their preparedness for IT adoption. They need to know how many and what type of staff would be required to run and manage the IT together with the kind of infrastructure needed to support the IT (Burges, 2002; Caruso & Marchiori, 2003). While more often not every aspect of the desired needs can be addressed by a single IT solution, it is important for management to use their judgement to determine trade-offs among goals, values and issues. SMEs may also make use of external consultants to help them assess their IT maturity.

3.4.2 Implementation Stage

The implementation stage involves the deployment and use of the acquired IT (Laudon & Laudon, 2009). As technology diffuses through the organisation, the need for employees with critical IT knowledge is crucial in order to run and manage the acquired IT successfully (Grady, 2006). This can be addressed by either employing dedicated staff with the requisite IT knowledge or by training current staff to be technologically literate (Duncombe, 2005). For SMEs, the former option would be less welcome because of the high cost associated with attracting skilled staff (Ashrafi & Murtaza, 2008). Conversely, IT training is likely not to involve much cost (Dhillon, Stahl & Baskerville, 2009). However, many SME owners/managers consider the time spent doing the training as a loss of revenue (Burges, 2002). As a result, many SMEs are left with the option of making use of what knowledge exists in their enterprises however inadequate it may be.

A number of theories have been proposed to help understand the diffusion of IT in the organisation. Among the most prominent are the Theory of Reasoned Action (TRA), which was later adapted and evolved into the Theory of Planned Behaviour (TPB), the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). These models are briefly described below.

Theory of Reasoned Action (TRA): This theory is used to determine and explain behaviour across different domains. In TRA the performance of an actual behaviour is influenced by the strength of individual's intention to perform the behaviour together with the attitude and subjective norms related to the behaviour (Ajzen, 1991; Ajzen & Fishbein, 1980). The norms where one's belief is influenced by what others (particularly those important to the person) think regarding whether a person should perform the behaviour or not are referred to as subjective norms (Ajzen & Fishbein, 1980). Figure 3-3 shows the diagrammatic representation of TRA.

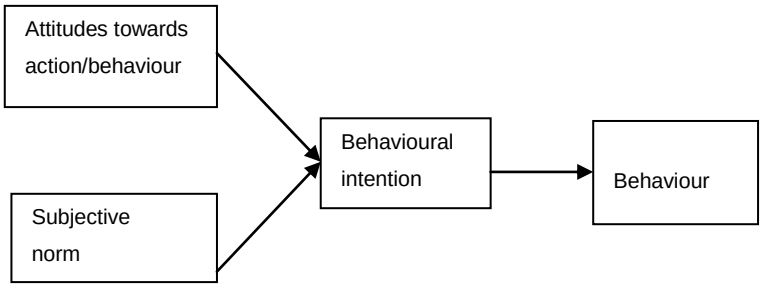


Figure 3-3: Theory of Reasoned Action

Source: Ajzen and Fishbein (1980)

An individual's attitude regarding a behaviour is thus defined as his/her positive or negative feelings about performing that behaviour (Ajzen, 1991; Ajzen & Fishbein, 1980). Attitude is determined by evaluating the individual's beliefs regarding the result of a behaviour and an assessment of the desirability of such results (Ajzen & Fishbein, 1980).

Based on TRA, it can be argued that the use of technology by an SME would be largely influenced by its strength and attitude in doing so.

Realising the weaknesses of TRA, Ajzen (1991) modified it by adding a third element called Perceived Behavioural Control to address the view held by people that they had minimal power over both behaviour and attitude. Incorporating this element led to the development of the Theory of Planned Behaviour.

Theory of Planned Behaviour (TPB):

According to TPB (Ajzen, 2002), a person's behaviour is influenced by the behavioural intention (a function of an individual's attitude toward the behaviour), the subjective norm informing the execution of the behaviour and the person's perception of the difficulty of performing the behaviour (behavioural control). The TPB is illustrated diagrammatically in Figure 3-4.

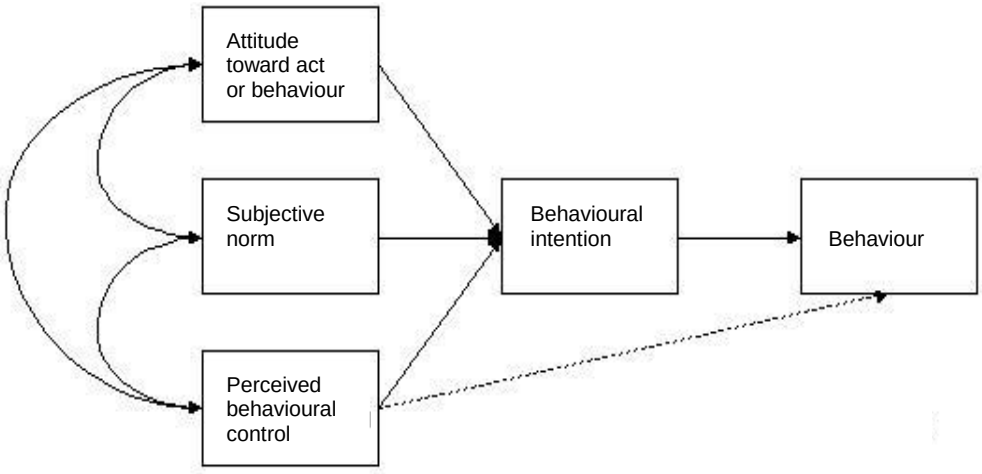


Figure 3-4: Theory of Planned Behaviour

Source: Ajzen (1991)

Both the TRA and the TPB are predictive models that predict one's action based on certain criteria. However, Werner (2004) observes that people's behaviour does not always conform to those criteria.

Technology Acceptance Model (TAM):

TAM was developed to enable the understanding of users' acceptance or rejection of IT by Davis (1989). From that time it has become the most widely accepted model employed to determine the IT acceptance decisions of users (Legris, Ingham &

Collerette, 2003; Bagozzi, 2007). The link between a person's attitude and actual use in the TAM was directly derived from the TRA.

In the TAM users' decisions regarding the acceptance of technology are informed by the perceived usefulness and perceived ease of use of the technology (Legris et al., 2003), with the intention to use acting as a mediator to actual use of the technology. Perceived usefulness is also directly influenced by perceived ease of use. Figure 3-5 illustrates the TAM.

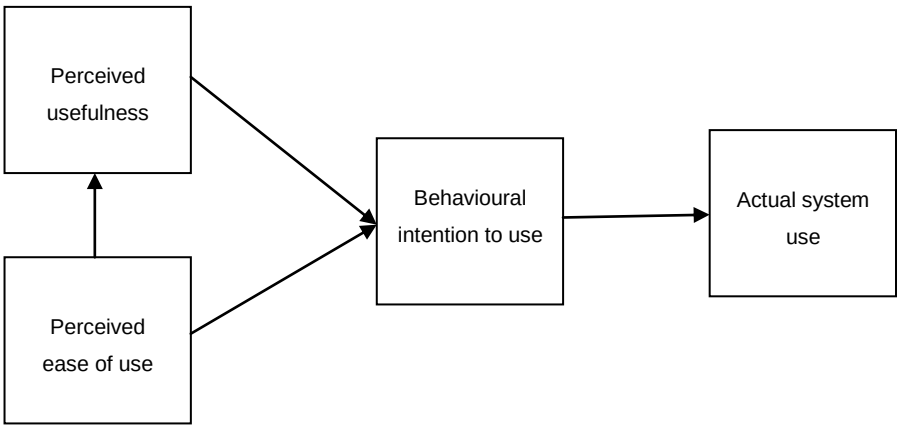


Figure 3-5: Technology Acceptance Model

Source: Venkatesh, Morris, Davis and Davis (2003)

However, certain limitations have been found relating to the TAM. For example it fails to incorporate important issues such as security (Handy, Whiddett & Hunter, 2001); relevant information users might possess regarding the system and the level of adopters in terms of gender, age, level of innovation and experience (Lu, Yu & Yao, 2003). Despite the limitations, the TAM is the most readily accepted model by SMEs because of the wider approval of the model (Bagozzi, 2007; Reimenschneider, Harrison & Myktyn, 2003)

In extending the TAM, Venkatesh et al. (2003) included social influences and cognitive processes and proposed what they called Unified Theory of Acceptance and Use of Technology (UTAUT).

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

The UTAUT endeavours to explain the user's intention to use technology and consequent usage behaviour. The UTAUT makes use of four primary constructs (performance expectancy, effort expectancy, social influence and facilitating conditions) as direct determinants of intention to use and behaviour (Venkatesh et al., 2003). The mediating factors of the four primary constructs are gender, age, experience and voluntariness (Venkatesh et al., 2003). The UTAUT is illustrated diagrammatically in Figure 3-6.

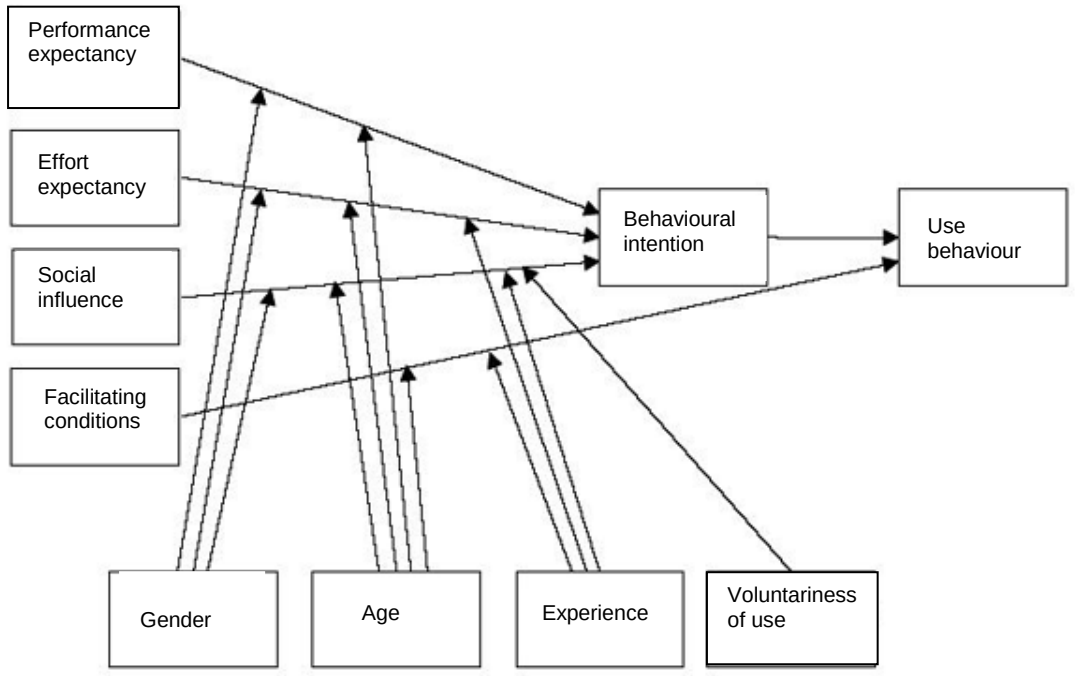


Figure 3-6: Unified Theory of Acceptance and Use of Technology

Source: Venkatesh et al. (2003)

The various models presented above (TRA, TPB, TAM and UTAUT) provide a way in which management can determine the likelihood that the technology being acquired will be accepted.

Also critical during the implementation stage is the training of the system users in how to use the system effectively. For many SMEs this is usually done in-house by the vendor (Awa, Eze & Urieto, 2011).

Once the implementation has been carried out an evaluation should be done to determine the success of the IT.

3.4.3 Evaluation Stage

This is a process carried out to determine the impact that the implemented IT has had on the organisation (Marthan & Tan, 2010; Grembergen, 2001). In addition, the continued relevance of the IT in the light of changing business environments and needs should be carefully evaluated.

The most widely used model for evaluating IT implementation success is the DeLone and McLean model (D & M Model). This model is considered the most comprehensive information systems assessment instrument (DeLone & McLean, 1992; Gable, Sedera & Chan, 2008; Petter & McLean, 2009; Saarinen, 1996; Almutairi & Subramanian, 2005). The instrument uses System Quality, Information Quality, and Service Quality as independent constructs, and Intention to use/Use, User Satisfaction and Net Benefits as dependent constructs. The instrument also shows the relationship between these variables.

Figure 3-7 shows the interrelationship between the six success categories employed in the D & M model.

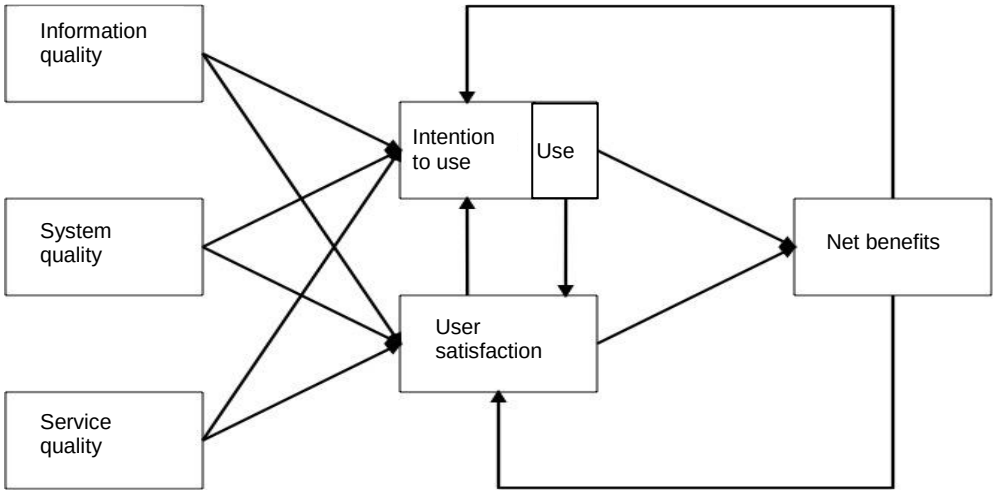


Figure 3-7: D & M Model of Information Systems Success

Source: DeLone and McLean (2003)

As indicated in Figure 3-7, the Information Quality, System Quality, and Service Quality individually or jointly affect either use or intention to use and the level of user satisfaction (DeLone & McLean, 2003). The notion here is that, when the quality of the information, system and service is poor, it will negatively affect the level of user satisfaction and the use or intention to use IT. Consequently, the intention to use or use

and the level of user satisfaction, while both have a bearing on each other, eventually translate into a net benefit for the organisation (DeLone & McLean, 2003). This net benefit in turn influences both user satisfaction and the use or intention to use. This means that if there is limited use/intention to use and a low level of user satisfaction as a result of poor information, system and service quality, minimal benefits will be derived from the IT and vice versa.

DeLone and McLean (2003) recommend that the dimensions of the instrument be modified to suit a particular situation or circumstance. Contexts such as the individual characteristics of the system, the technology, and the size and structure of the organisation should be taken into account (Gable et al., 2008). For example, researchers like Molla and Licker (2001), Wu and Wang (2006), Lin (2008) and Wang (2008) have applied the model in various contexts by modifying the dimensions as needed.

When the IT investment decision is made carefully it will most certainly result in good returns for SMEs; however, when it is not well thought out the effect can be devastating for SMEs. In the following section the approach employed by SMEs in developing countries in adopting IT is discussed.

3.5 IT Adoption Strategies Employed by SMEs in Developing Countries

There are no clear guidelines that can be offered to SMEs to help them in their IT adoption process (Apulu et al., 2011; Asasen et al., 2003; Dhillon et al., 2009). A number of research studies in the current literature have dwelt largely on the barriers to and drivers of IT adoption, thus ignoring this critical element of IT adoption strategy/process. Levy and Powell (2000) observe that IT adoption by SMEs is more often done without any careful planning, resulting in high failure rates in the implementation.

SME owners/managers play a critical role in the management of SMEs; as a result, they have a personal influence on the enterprise which has a significant wider impact. Therefore, it is logical to say that if an SME's owner/manager has an aversion to new technology it is unlikely that IT will penetrate the SME. Even if the employees of the SMEs may have a conviction regarding the positive value of IT, surmounting the beliefs

and persuading the SME's owner/manager, who is the chief decision maker in the enterprise, can be a daunting task.

Many SMEs in developing countries do not have the necessary know-how to evaluate their need for IT. This involves identifying processes that could benefit from IT adoption and some SMEs consider such a process to be cumbersome and time consuming (Awa et al., 2011; Manochehri et al., 2012). As a result, these SMEs seldom engage in requirements engineering activities prior to their decision-making stage on whether or not to adopt IT. While the SMEs are owned and managed by the owners/managers, and while it is also true that the management will not be the only users of the technology, the potential users within the SMEs are very seldom engaged in the decision-making process (Mpofu & Watkins-Mathys, 2011). The decision on whether or not acquire technology, the type of technology and where to obtain it is normally done in a ad hoc manner by the manager without any consultation with other employees/stakeholders (Ndiege, Wayi & Herselman, 2012; Awa et al., 2011).

Many SMEs owners/managers in developing countries consult their peers who have adopted the use of IT to help identify a potential vendor (Macharia, 2009; Duncombe, 2005; Kapurubandara, 2008). However, many do not evaluate what technologies are available in the market to determine whether or not the technology has the potential to address their unique needs (Kapurubandara & Lawson, 2007). The choice of IT solution is primarily influenced by its availability and affordability (Awa et al., 2011); although various approaches are available that can be used to procure IT, such as internal development, external development and the use of commercial off-the-shelf (COTS) products. Owing to resource constraints, many SMEs in developing countries rely heavily on COTS products because these are cheap and readily available (Burges, 2002; Dhillon et al., 2009). It should be noted, however, that most of these COTS solutions are not flexible enough to accommodate the varied business practices within the SMEs in developing countries. As such more often they fail to address the unique needs of these SMEs.

Studies have indicated that SMEs in developing countries seldom carry out a post-adoption evaluation, the reason being that many of the SMEs are unaware of the need for such a process (Moyi & Njiraini, 2005; Mpofu & Watkins-Mathys, 2011). This has resulted in SMEs using IT that is outdated and ineffective in the light of technological

and market shifts (Ndiege et al., 2012; Apulu et al., 2011). This situation is exacerbated by SME owners/managers' perceptions of IT as a business tool with no reward (Mpofu & Watkins-Mathys, 2011). Consequently, this remains a major barrier to IT adoption within these enterprises.

Table 3-3 is used to indicate the challenges experienced with the current IT adoption strategy employed by developing country SMEs.

Table 3-3: Present IT adoption strategy and its shortcomings

IT Adoption strategy process stage	Present scenario	Associated shortcomings	Illustrative references
Decision stage	IT need identification is primarily done by the SME owner/manager.	Lack of input from other key stakeholders. This could also lead to rejection of the IT by other stakeholders not involved in the process.	Apulu et al. (2011); Awa et al. (2011); Benzing and Chu (2009); Ndiege et al. (2012); Lubbe (2004); Manochehri et al. (2012)
	IT need identification is not done as a form of analysis; rather the management makes ad hoc decisions regarding the existence of a need.	Inaccurate/wrong needs identified, resulting in the use of IT that does not address the actual/real needs of SMEs.	
	SMEs owners/managers consult their peers who have adopted IT to help identify IT vendor and they do not evaluate what is available in the market.	Not being open to other sources of information and being unaware of other better technologies in the market.	
	The choice of IT is primarily influenced by the availability and affordability of the IT solution.	May end up with IT that is affordable but does not address the needs of the SME.	
Implementation stage	IT solution is implemented and the users trained on its usage by the vendor.	No shortcomings.	Ashrafi and Murtaza (2008); Mpofu and Watkins-Mathys (2011); Ndiege et al. (2012); Sharma and Bhagwat (2006)
	No skilled IT staff is acquired and the SMEs make use of the available pool of staff.	Some sophisticated technologies may require hiring of skilled staff to operate them.	
Evaluation stage	Many SMEs never engage in an evaluation of the implemented IT.	The success and continued relevance of the IT to the SMEs in never determined.	Awa et al. (2011); Marthan and Tan (2010); Ndiege et al. (2012)

Source: The researcher

SMEs have scare resources at their disposal (Katz & Green, 2010); because of this they venture cautiously into IT investment. For the purposes of this study it is therefore important to understand how SMEs make use of the IT solutions they adopt. This is the purpose of the next section.

3.6 IT Usage within SMEs in Developing Countries

A number of studies have shown that firms that invest in IT are more productive (Bannock, 2005; Katz & Green, 2010; Dhillon et al., 2009; D'Atri & Sacca, 2009; Pinkham et al., 2010). It is important therefore that SMEs take advantage of the current technological advancements. Stylianou and Kumar (2000, p. 99) observe that SMEs need to determine how they can "take best advantage of IT in order to support its operations, add value to its products and services, and gain competitive edge in the market place". Delivering quality products or services is a strategic necessity and is linked to an organisation's IT resources and capabilities (Ray, Muhanna & Barney, 2005).

To be able to obtain a considerable competitive advantage from IT investment, SMEs need to link their IT to their business strategy (Levy & Powell, 2005). That is to say, IT needs to fit with the SMEs' objective of gaining a competitive advantage. This may be done by taking advantage of the opportunities offered by IT through its three basic roles (Laudon & Laudon, 2009): automation, information and transformation. When the human effort is substituted with IT, the IT is considered to have automated a task or process. When the human effort is supplemented by IT, IT is considered to have informed a task or process. And when IT restructures, then IT transforms a set of tasks or processes.

Many SMEs initially use IT primarily to automate their simple and single existing processes (Dhillon et al., 2009). This can be attributed to the fact that automation requires less financial resources and less restructuring (D'Atri & Sacca, 2009; Laudon & Laudon, 2009). In this phase of IT usage, matters relating to IT within the enterprise are left to specialists and managers are hardly ever involved (Ayyagari et al., 2007; Dhillon et al., 2009).

With positive benefits trickling to them after the initial venture into the use of IT, most SME owners/managers start gaining more confidence in the technology and are more willing to invest further in it (Bannock, 2005; Duncombe & Molla, 2009). As a result, the SME management begins to explore other possibilities that can be offered by IT (Caruso & Marchiori, 2003; Dhillon et al., 2009). It is at this stage that the IT roles of informating and transformating are explored (Caruso & Marchiori, 2003; Dhillon et al., 2009), the strategic significance of IT begins to be more appreciated and the use of IT to upgrade quality, improve customer service and enhance integration with suppliers becomes the order of the day (Laudon & Laudon, 2009; Duncombe & Molla, 2009; Dhillon et al., 2009). These roles in IT usage have further leveraged the competitiveness of the SMEs that have invested in IT. Most SMEs are now beginning to view IT as a strategic tool that they can use to gain competitive advantage, and more SMEs are becoming directly involved with IT because of the potential of technology to enable them to fulfil their duties efficiently and effectively (Megginson et al., 2008).

The way in which IT is currently used in SMEs can be summarised as follows (Ayyagari et al., 2007; Dhillon et al., 2009):

- redesigning of business processes to have more streamlined processes and also to do away with redundant processes
- cutting down cost by significantly reducing information processing costs, and improving reliability
- providing timely and quality information for better decision making
- improving the quality of their products and services
- increasing revenue
- enabling SMEs to survive in the highly competitive market, especially now in the face of globalisation.

How fast an SME is able to move from basic usage of IT, such as automation, to more advanced usage, such as transformation of the business process, also largely depends on the growth stage of the SME (D'Atri & Sacca, 2009; Churchill & Lewis, 1983). According to Churchill and Lewis (1983), SMEs go through a series of growth stages in

the following order: existence, survival, success, take-off and resource maturity. During the transition from one stage to the next, there are different challenges that SMEs will need to overcome in order to have a successful growth transition (Katz & Green, 2010). During the existence stage, there are no organisational structures and the focus is on obtaining customers (Katz & Green, 2010); as such SMEs seldom have formal systems, and rarely invest in IT. As the business progresses, however, the organisational structures become more evident and it is from this stage that most SMEs will start to consider employing the use of IT for their basic operations (Katz & Green, 2010; D'Atri & Sacca, 2009). This use of IT becomes more pronounced as the SMEs attain resource maturity (Katz & Green, 2010; D'Atri & Sacca, 2009).

By strategically positioning their IT, SMEs can tap into the enormous potential advantages offered by technologies to gain competitive mileage. SMEs can take advantage of their flexibility and relatively small size (Katz & Green, 2010) to their advantage, as these are perfect conditions for the diffusion and application of IT (Datta, 2007). With their flexibility and small size, SMEs will not need complex structures to facilitate the diffusion and application of IT (Datta, 2007) and can easily change to accommodate the requirements of the new IT solution.

Many developing countries, however, rely on technologies that are transferred from developed countries. The usefulness and appropriateness of such outsourced technologies has been disputed by a number of scholars (Heeks, 2002; Weigelt & Sarkar, 2012; Jan, Hendrik & Dirk, 2008). Such technologies, while generally unsuitable, are equally costly to implement and even maintain within the economic, social and cultural context of developing countries. In our previous study on information systems used by SMEs in Eldoret, Kenya (Ndiege et al., 2012), we discovered that many of the surveyed SMEs made use of outsourced technologies but the systems failed to address the unique needs of these SMEs. However, this scenario is likely to change now that hardware and software development companies are beginning to take root in Kenya and other developing countries. This will most certainly set the stage for the development of technological products that take into consideration the contextual issues inherent in developing country environments. The result of this will be

technological products that are capable of addressing the unique needs of the SMEs in developing countries. Weigelt and Sarkar (2012), while contending that technological outsourcing hurts adaptability, affirm that organisations can make use of AC to mitigate such effects.

Since this study dwells on studying SMEs in Kenya, it is important to understand the situation in Kenya regarding IT adoption and usage within SMEs. The next subsection presents the case of Kenya.

3.6.1 The Kenyan Situation

While there is a paucity of literature regarding SMEs in Kenya, as is the case with other developing countries, this subsection highlights the small amount of available literature relating tithe situation of the Kenyan SMEs with regard to IT adoption and use.

According to the Kenyan Economic Report (2009), SMEs constitute 74.8 per cent of all business enterprises in Kenya, the sector employs 77 per cent of the total labour force and also contributes about 20 per cent of Kenya's gross domestic product. According to the Kenya National Bureau of Statistics (2011), Kenya now has a population of about 40 million. It is imperative, therefore, that the economy grows steadily to cater for this population. Moreover, to attain its Vision 2030, Kenya needs a sustained economic growth rate of 10 percent over the next 20 years (Wahome, 2007). Currently, the country is experiencing a growth rate of about 5 percent (KNBS, 2013), which is far below what is required to attain its Vision 2030 goals.

The promotion of SMEs in Kenya remains a significant component of the country's development strategy (Wahome, 2007; Matambalya & Wolf, 2001; Nalo, 2008; Macharia, 2009; KNBS, 2011). By making a significant contribution to the generation of employment and income, as well as tackling the common problem of regional disparities (Wahome, 2007; KIPPRA, 2009), SMEs in Kenya have gained more prominence in the industrial scenario. As noted by Nalo (2008), however, this sector in Kenya has remained highly segmented and poorly coordinated, and rarely applies operational industry best practices. This could further help explain why the sector has always

lagged behind in growth (Nalo, 2008; World Bank, 2004; Moyi, Otieno Mumo, & Ronge, 2006).

IT is widely believed to have a significant potential to positively influence organisations and the manner in which they conduct businesses. This impact of IT has been widely discussed and is evident in a number of organisations. In Kenya, the impact of IT is manifest in the education, health, financial and revenue collection sectors (Bowen, Morara & Mureithi, 2009; International Financial Corporation, 2007; Macharia, 2009; Ngugi, Pelowski & Ogembo, 2010). Thus, a number of organisations both large and small are increasingly investing in IT in the hope that such investments will translate into improved services through enhanced business processes and consequently increased productivity. The use of IT has been buoyed by recent developments in the laying of the fibre optic cable in Kenya; however, access to the internet remains a problem as it has yet to be rolled out to all parts of the country. It is hoped that with this advancement many SMEs will exploit IT to improve their technological base.

The Government of Kenya (2011) has identified the following as some of the challenges facing the infiltration and use of IT in Kenya:

- lack of infrastructure and services in underserved urban and rural areas
- limited access to national broadband infrastructure
- high cost of broadband connectivity
- lack of broader IT policy and regulations
- lack of IT services and applications for economic and social development, wealth creation and poverty reduction
- lack of confidence and trust in the use of IT
- lack of IT literacy that can enable citizens to be active participants in the creation of an inclusive information society
- the modernisation of postal services to be in line with the international trends.

While the IT literacy level is still low in the country (Khushbu, Myers & Andrade, 2009), there is little IT training being undertaken by SMEs in Kenya despite evidence of the value of such training to the management of SMEs and their employees (Ndiege et al.,

2012; Kashangaki, 2008). While it can be said that the receding cost of IT along with an increase in IT products that are user friendly has encouraged more SMEs in developing countries to adopt IT, in a previous study of SMEs in Eldoret, Kenya (Ndiege et al., 2012) we found out that the SMEs were still lagging behind in successfully converting the full potential of IT into practice. We observed that a number of the SMEs that participated in the study appeared to suffer from several problems at various stages of their IT adoption process.

While the government is making some efforts in empowering SMEs (KNBS, 2011), there is still a lack of development policy and research initiatives undertaken by the Kenyan government aimed at uplifting SMEs (Benzing & Chu, 2009; Moyi et al., 2006).

The characteristics of SMEs together with the prevailing environments within which SMEs in Kenya operate are major contributors to the challenges that these enterprises face in their IT adoption process (Moyi et al., 2006). However, a strong SME sector in Kenya that is well assimilated into the global digital economy through technological exploitation has the potential to create more job opportunities, increase public revenue and consequently raise the standard of living for its population.

A number of studies have been conducted that show the factors that hinder and promote the success of IT within SMEs in developing countries. These factors are discussed in the subsequent subsection.

3.6.2 Barrier and Drivers of IT Success within SMEs in Developing Countries

The introduction of IT in SMEs is normally considered the start of a transition that is full of risks, and of uncertain final results (Caruso & Marchiori, 2003). More often, during the process new issues emerge on top of those that are already there, and management complexity possibly increases to new levels (Megginson et al., 2008). With SMEs in developing countries having insufficient managerial and technical skills, and a lack of funds to obtain such skills, coupled with the fact that the prevailing environments in these countries is not conducive to their operation (Agbeibor, 2006; Austin, 1990; Beck et al., 2003; Kapurubandara, 2008), these SMEs often do not implement IT optimally

(Tyler & Shah, 2006; Caruso & Marchiori, 2003). Empirical findings have shown that, despite the enormous benefits associated with the use of IT, SMEs in developing countries still make very limited use of these technologies (Beck et al., 2003; Kapurubandara, 2009; Kapurubandara & Lawson, 2007).

Previous research has shown that the main obstacles to IT among SMEs in developing countries are the cost involved, skills deficiencies, poor infrastructure, government regulations and the belief that IT adoption will not reduce costs or lead to positive gains (Kyobe, 2004; Duncombe & Molla, 2009; Matambalya & Wolf, 2001). Interestingly, some researchers claim that the anticipated gains are merely fictional and are unlikely to materialise in some cases (Matambalya & Wolf, 2001). This may be true, owing to the numerous hurdles that most SMEs in developing countries have to contend with. The unfavourable environments within which SMEs in developing countries operate exert negative effects on the implementation and use of IT.

It has been noted that social context and organisational challenges are also impediments to successful IT adoption within SMEs (Burges, 2002; Higgo, 2003). For example, people are always sceptical about change, and there are also political and cultural resistances to change. Likewise, there are management complexities that are also associated with changes brought in by the adoption of IT in SMEs. Investigation of a sample of 70 SMEs in South Africa by Kyobe (2004) found a lack of skills and knowledge as the main inhibitors to the utilisation of IT resources within these enterprises.

These barriers to successful IT adoption by SMEs in developing countries can be summarised as follows (Ayyagari et al., 2007; Duncombe & Molla, 2009; Kapurubandara, 2008; Ndiege et al., 2012; Manochehri et al., 2012):

- high cost associated with the technology
- lack of sufficient time to dedicate to the implementation and maintenance of IT
- lack of requisite knowledge of IT, coupled with challenges in finding useful, impartial advice
- lack of use of external vendors and consultants

- short-range management perspectives
- poor understanding of the benefits that the adoption of IT can provide, and how these benefits can be measured
- poor formal planning or control procedures.

With more failures than success stories in their efforts to adopt IT, there are certain elements that SMEs can explore in order to attain success in their efforts to embrace IT solutions in their operations. The few success stories relating to IT in SMEs can be attributed to the following (Bingi, Mir & Khamalah, 2000; Burges, 2002; Boddy, Boonstra & Kennedy, 2002; Caldeira & Ward, 2002; Caruso & Marchiori, 2003; D'Atri & Sacca, 2009):

- involvement of owner/manager in the implementation of IT
- involvement of users in the development and installation of the IT
- training of users
- selection of processes chosen for computerisation
- use of disciplined planning methodologies in setting up applications
- level of IT expertise within the organisation
- role of external environment (especially consultants and vendors).

SMEs can make use of their potential AC (see Chapter 2 section 2.2) to be able to fully comprehend the external factors and how this affects their IT adoption strategy. Conversely, they can exploit their realised AC (see Chapter 2 section 2.2) to fully understand the internal factors affecting their IT adoption strategy. The proposed IT Adoption Strategy Improvement Model (ITASIM) is developed to enable SMEs to carefully exploit their AC to 'listen' and act on both internal and external factors affecting their IT adoption strategy.

This literature review in this chapter was important in helping to address the research questions. The next section illustrates how this was achieved.

3.7 How the Literature in Chapter 3 Addressed the Research Questions

The insights gathered from the literature review in this chapter provided a further basis for answering the primary research question and the sub-research questions in the following manner:

1. The Primary Research Question: *How can Kenyan SMEs be supported to improve their IT adoption strategies through a model on Absorptive Capacity?*

   This primary research question was informed by first understanding what a developing country is (see section 3.2), as the country under study, Kenya, is considered a developing country. This also led to an understanding of the prevailing environments within which SMEs in developing countries have to operate. The chapter also presented a lens through which the critical role of SMEs in developing countries may be appreciated (see section 3.2.1) thereby giving justification for why SMEs need to be supported. The concept of IT adoption strategy (see section 3.4*)* was also presented and the identification of the shortcomings of the current IT adoption strategies employed by SMEs in developing countries illuminated (see section 3.4.1). This helped provide a justification for why these current strategies need improvement in order for SMEs to adopt IT effectively.

2. Sub-research Question 1: *How does Absorptive Capacity contribute to the organisational performance of SMEs in Kenya?*

   The chapter helped create an understanding of a developing country environment (see section 3.2) and the characteristics of SMEs in these countries (see section 3.2.2). These elements are instrumental in understanding the AC of these SMEs. Further, the present situation of Kenyan SMEs was presented (see section 3.6.1), creating a lens through which the mediating effect of AC on the organisational performance of these SMEs may be understood.

3. Sub-research Question 2: *How effective are the IT adoption strategies employed by SMEs in Kenya?*

   Sections 3.3 and 3.4 provided a theoretical lens for understanding what constitutes an effective IT adoption strategy. This became instrumental in helping to determine whether or not the strategies employed by SMEs in Kenya meet these requirements.

4. Sub-research Question 3: *How does Absorptive Capacity influence the choice of IT adoption strategy?*

   This sub-question was not directly addressed by the literature in this chapter but will be addressed using the research findings, which are presented in Chapter 5. Nonetheless, the literature discussed in this chapter (see section 3.4) did provide an understanding of IT adoption strategy.

5. Sub-research Question 4: *Why is the proposed model beneficial for Kenyan SMEs?*

   For the proposed ITASIM to be beneficial for SMEs, it must help address some of the shortcomings of the current IT adoption strategies. Accordingly, section 3.5 presented some of the shortcomings of the current adoption strategies. These insights enabled the researcher to design the ITASIM in a manner that makes it capable of addressing these shortcomings and consequently rendering the model relevant and useful to Kenyan SMEs.

It is clear from the presentations in this section that the literature in Chapter 3 was relevant in helping understand and answer the research questions. The literature discussed in the chapter was equally important in informing the conceptual framework of the ITASIM. How this was achieved is the subject of the next section.

3.8 Conceptual Framework of ITASIM Informed by Literature in Chapter 3

As was the case with the previous chapter, this chapter presented a number of theories that were adopted for use in building the proposed ITASIM. As was mentioned in Chapter 2 (see section 2.5) the ITASIM is made up of independent structural elements which can be viewed in isolation as single process areas and these are focused on

independently. These process areas that make up the ITASIM are Absorptive Capacity, strategy improvement and IT adoption strategies.

Table 3-4 shows, at a high level, the various theories that were reviewed in the literature discussed in Chapter 3 and how they informed the ITASIM.

Table 3-4: Chapter 3 literature informing the conceptual framework of ITASIM

Literature informing the conceptual framework of ITASIM			
Heading from literature	**Contribution to ITASIM**	**Process area(s)**	**Illustrative reference**
3.2 Developing countries defined	The prevailing environments in developing countries.	Absorptive Capacity, strategy improvement, and IT adoption strategy	Agbeibor (2006); Chari and David (2012); IDRC (2010); Todaro and Smith (2006); UN (2009); World Bank (2010)
3.2.1 The role of SMEs in developing countries	Significance of SMEs in developing countries.	Absorptive Capacity, strategy improvement, and IT adoption strategy	Ayyagari et al. (2007); Beck et al.(2003); Megginson et al. (2008) Sanford (2003); Todaro and Smith (2006)
3.2.2 Characteristics of SMEs in developing countries	Unique attributes of SMEs.	Absorptive Capacity, strategy improvement, and IT adoption strategy	Gils (2000); International Financial Corporation (2007); Kapurubandara and Lawson (2007); Katz and Green (2010); Tyler and Shah (2006)
3.3 What is strategy?	Elements of a good strategy.	Strategy improvement, and IT adoption strategy	Chaharbaghi (2007); Dess and Miller (1993); Grant (2008); Levinthal,(2011); Micheli et al. (2011); Mintzberg and McHug (1985); Porter (1996)

Heading from literature	Contribution to ITASIM	Process area(s)	Illustrative reference
3.4 IT Adoption strategy 3.4.1 Decision-making stage 3.4.2 Implementation stage 3.4.3 Evaluation stage	Stages of IT adoption.	Strategy improvement, and IT adoption strategy	Awa et al. (2011); Ajzen (2002); Laudon and Laudon (2009); Sharma and Bhagwat (2006); Russell and Hoag (2004); Thong (1999); Venkatesh et al. (2003)
3.5 IT Adoption strategies employed by SMEs in developing countries	Weaknesses of the present adoption strategy.	Strategy improvement and IT adoption strategy	Levy and Powell (2000); Awa et al. (2011); Apulu et al. (2011); Benzing and Chu (2009); Ndiege et al. (2012); Lubbe (2004)
3.6 IT usage by SMEs in developing countries	Technology usage with SMEs.	IT adoption strategy and strategy improvement	Bannock (2005); Katz and Green (2010); Dhillon et al. (2009); D'Atri and Sacca (2009); Levy and Powell (2005); Duncombe and Molla (2009); Ndiege et al. (2012)
3.6.1 The Kenyan situation	IT penetration in Kenya; the situation of Kenyan SMEs.	IT adoption strategy and strategy improvement	Kenyan Economic Report (2009); KNBS (2011); Ndiege et al. (2012); Wahome (2007); Khushbu et al. (2009)
3.6.2: Barriers to and drivers of IT success in SMEs in developing countries	Factors responsible for success and failure of IT in SMEs.	IT adoption strategy and strategy improvement	Agbeibor (2006); Beck et al. (2003); Zowghi (2003); Kapurubandara and Lawson (2007); Sarosa and Zowghi (2003); Manochehri et al. (2012)

Source: The researcher

3.9 Conclusion

Any successful business operation hinges on capital availability, level of education and the business culture, among other things. Many developing countries, however, lack these vital factors; as a result, many SMEs in developing countries have failed to thrive (Agbeibor, 2006). Moreover, it is clear that SMEs in developing countries have to operate under harsher business environments, this notwithstanding the fact that they are ill prepared to face these challenges effectively. SMEs that are competitive and innovative, however, hold enormous promise for developing countries particularly in terms of improved income growth, increased employment opportunities and, consequently, the improved economic stability of the country. With SMEs being pivotal to economic growth, it is only logical that more focus is accorded to these enterprises.

IT within SMEs needs to be dynamic, supporting the current business strategy, while at the same time being able to respond to the changes in the market. This can only happen through effective IT adoption strategies that will not only ensure that the right technology is acquired but also that it is well implemented and continuously evaluated to ensure its continued relevance to SMEs in the light of market shifts and changes within the SMEs. The chapter, however, presents the sad situation facing many SMEs in developing countries in their efforts to embrace IT. Many of these SMEs are yet to fully embrace and exploit the full potential of IT. If well implemented and used optimally, IT can help SMEs in developing countries solve some of the perennial problems facing them.

With respect to IT adoption strategies, this thesis is guided by the following argument:

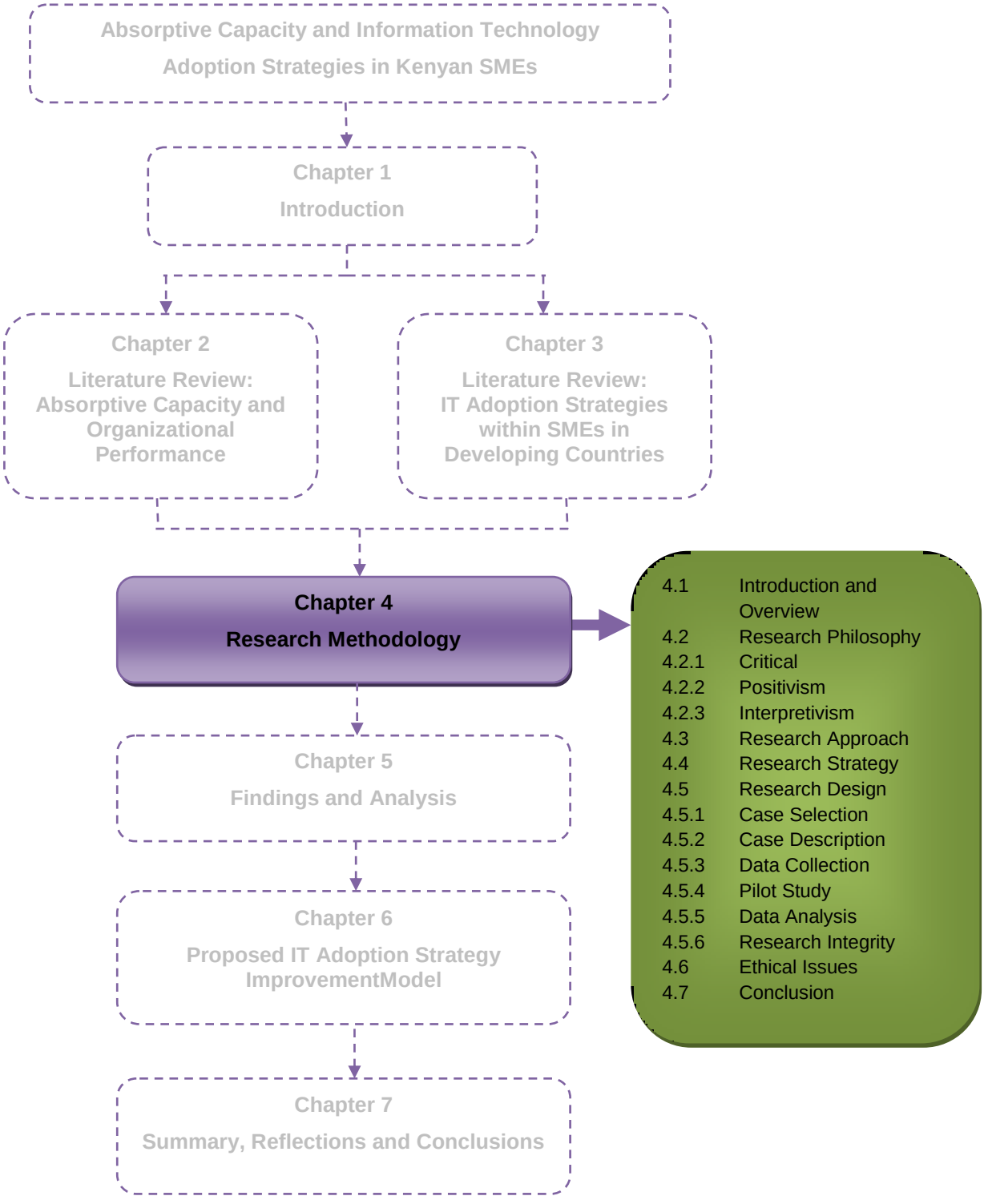
> That to be able to have sustained productivity and growth, and remain competitive, SMEs need to re-evaluate every aspect of their IT adoption strategies and pay close attention on the effective use of IT, including making better decisions about their IT investments. That the process of IT adoption cannot just be done arbitrarily by the SMEs and expect positive returns from such investment. That only through effective IT adoption processes can SMEs develop superior technological capabilities which are critical to their competitive advantage. With proper strategies,

SMEs in developing countries can use IT effectively to their advantage, notwithstanding the many challenges that they have to contend with. While there is a great deal of literature on the drivers of and barriers to IT adoption by SMEs, very few empirical studies have been conducted on strategies that SMEs in developing countries can employ to effectively adopt IT. This presents a gap in the research in this field that needs to be filled. This study consequently endeavours to contribute to filling this gap.

It is clear from the literature reviews conducted in both Chapters 2 and 3 that the process areas of the proposed ITASIM were built using theories that have a solid grounding in the literature. Accordingly, this demonstrates the scientific nature of the proposed ITASIM.

This chapter concludes the literature review conducted to build the theoretical base for the study. The following chapter discusses the research methodology that has been adopted in this study.

CHAPTER 4 – DIAGRAMATIC OVERVIEW



CHAPTER 4

RESEARCH METHODOLOGY

4.1 Introduction and Overview

The previous two chapters presented a review of the literature relevant to this study, thereby creating a solid theoretical base for this research. Chapter 2 presented a discussion on Absorptive Capacity (AC) and its influence on organisational performance. Chapter 3, by contrast, dwelt on the Information Technology (IT) adoption strategies employed by Small and Medium-size Enterprises (SMEs) in developing countries. This study endeavours to establish how SMEs in Kenya can be supported to improve their IT adoption strategies through a model on AC. To this end, the preceding chapters have helped to address the research questions by providing a theoretical lens that informed the theoretical and conceptual framework of the proposed IT Adoption Strategy Improvement Model (ITASIM). Further, the insights gained from the literature reviews were instrumental in case formulation, identification of units of analysis and participant selection.

The thesis methodology provides the researcher with an avenue for presenting the methods that will be used to arrive at the results for the identified problem. Moreover, the researcher's reasoning behind the choice of a research method is also presented (Saunders et al., 2007). Carefully thinking and choosing an appropriate method for a given research study is critical for the success of a research project. Hofstee (2006, p. 109) notes that, "careful thought with regard to your method can easily end up saving you an enormous amount of time, effort and frustration". Creswell (2003, p. 3) meanwhile observes that a researcher "needs to consider three framework elements [in a research design]: philosophical assumptions about what constitute **knowledge claims**; general procedures of research called **strategies of enquiry**; and detailed procedures of data collection, analysis, and writing, called **methods**". In this chapter, these issues are addressed in relation to the study.

Research is an accumulation of a series of stages. Saunders et al. (2009) have classified research into six stages and named the model representing this as the "research onion". Figure 4-1 illustrates the research onion. The six stages include

philosophies, approaches, strategies, choices, time horizons, techniques, and procedures.

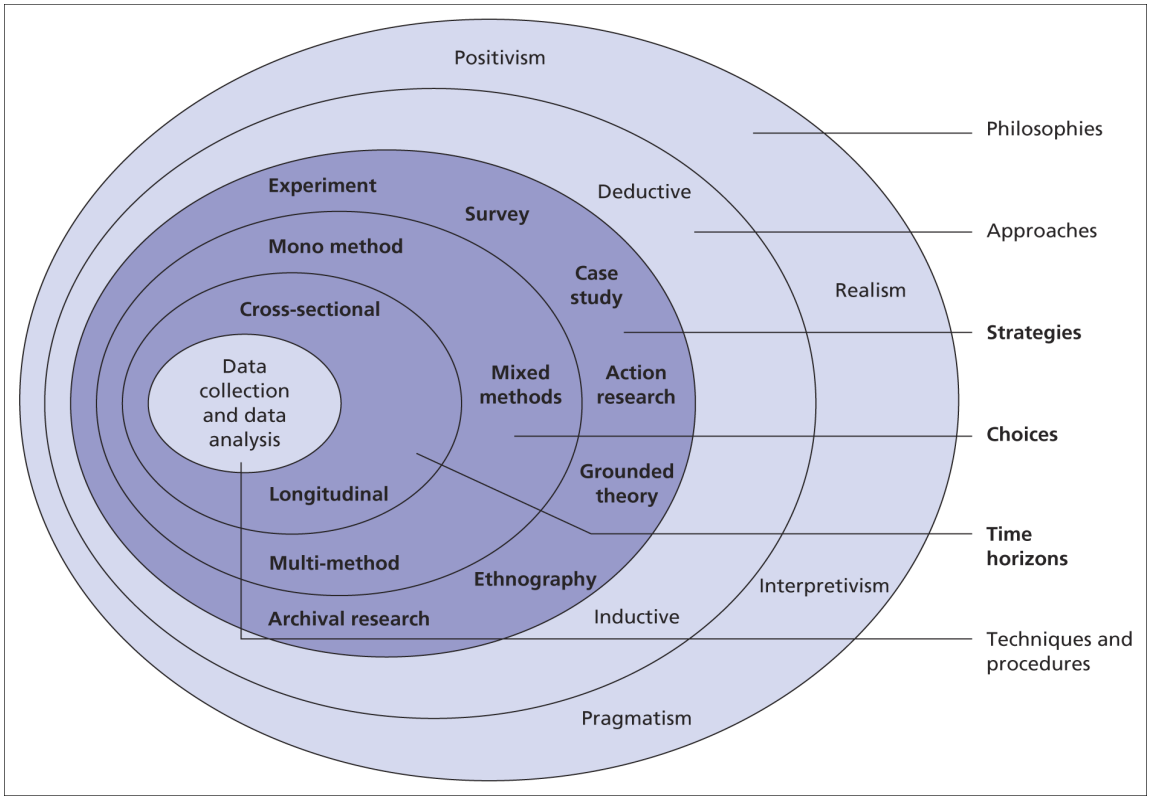


Figure 4-1: The research onion

Source: Saunders et al. (2009)

The presentation of this chapter follows the research onion approach and begins by addressing the research philosophy adopted in the study. This is then followed by a presentation of the research approach and the strategy employed. The design of the research is then presented and overall conclusions on the chapter are made (see Figure 4-8).

4.2 Research Philosophy

The choice of research philosophy is critical to any research undertaking, as the adopted philosophy will influence the way in which the research is undertaken beginning with the design through to the conclusions. The adopted philosophy needs to be clearly stated since it helps to present the researcher's perception of the world, what the researcher believes constitutes reality (ontology), how that reality is understood (epistemology) and the methods that can be used to obtain further knowledge on that reality (Saunders et al., 2009).

Easterby-Smith, Thorpe and Lowe (2002) identify three reasons why it is important to examine the philosophy with reference to the research methodology:

- Firstly, it helps the researcher in refining and stating the research methods to be used in the study (the overall research strategy). This will make clear what evidence is to be gathered, its source, how it will be interpreted and how it helps in addressing the research questions posed.
- Secondly, understanding of the research philosophy will be instrumental in helping the researcher to evaluate various methodologies and methods in order to steer clear of wrong usage and unnecessary work by identifying the strengths and weaknesses of the approaches early in the research process.
- Thirdly, it could help the researcher to be creative and innovative in the selection or adaptation of methods that the researcher had no previous experience with.

The three issues presented above clearly demonstrate the critical role played by research philosophy in any study that is to be undertaken.

There are three underlying research philosophies, namely, critical, positivism and interpretivism (Orlikowski & Baroudi, 1991; Klein & Myers, 1999; Saunders et al., 2007). These three philosophical views are briefly discussed in the following subsections.

4.2.1 Critical

This philosophical stance emanates from the critical researcher's perspective. In this view it is assumed that social reality is historically formed and that through people it is produced and reproduced (Klein & Myers, 1999; McGrath, 2005; Myers & Klein, 2011). Despite the fact that people can knowingly act to change their surroundings, the assumption in this epistemology is that this ability is hampered by social, cultural and political factors.

The primary objective of critical research is to create knowledge with an emancipatory intent by focusing on conflicts, contradictions and oppositions (Myers & Klein, 2011). In this study, the intent is not to evaluate conflicting, contradicting or opposing issues, rather the aim is to evaluate the Absorptive Capacity and IT adoption strategies within SMEs (with no focus on studying conflicts, contradictions

or oppositions on these subjects) with the objective of finding how SMEs can harness their AC and use this as a tool to improve their IT adoption strategies. As such, this study does not adopt this epistemological view.

4.2.2 Positivism

Positivists view reality as objective and the focus is on formal theories and quantifiable measures (Thorpe et al., 2008; Saunders et al., 2009). In this view, the world is considered as external and objective to the researcher, and people and things are considered to be alike (Saunders et al., 2007). Further, the ontological assumption is that the research subjects and the researcher do not have direct contact. The epistemological assumption is that knowledge can be measured with a great deal of accuracy and precision, and the researcher should not interfere with the research respondent's opinions, perceptions and ideas (Saunders et al., 2007). The use of deductive logic to test causal relationships and theories is adopted in the methodological approach (Saunders et al., 2007). Although this approach produces effective results that are easily generalisable, it fails to capture the social nature of humans. Therefore, a study that explores the social world of people and organisations, the culture they develop and the meanings they impose on things would not be ideal from a positivist philosophical stance.

Since this study explores the complex phenomena of AC within SMEs and their IT adoption strategies and how these strategies are influenced by the SMEs' AC, it would be challenging to adopt a positivist stance as this study requires an approach that will enable an understanding of the whole complex process.

4.2.3 Interpretivism

In interpretivist philosophy, the assumptions made are that reality and knowledge are constructed socially (Klein & Myers, 1999) and the researcher must make contact with the research participants and, therefore, be a participant observer in order to obtain the reality and meanings within specific social contexts. In this view, the ontological assumption is that the researcher's knowledge of the subject is based on the subjective experiences of the research participants, and the epistemological assumption is that the knowledge obtained should be interpreted (Sobh & Perry, 2006). Research conducted in terms of this philosophical view often takes a qualitative approach and inductive reasoning is adapted to provide rich data for

theory building (Creswell, 2007; Easterby-Smith et al., 2002; Jackson & Verberg, 2007).

This study endeavours to make a model primarily from the insights gleaned from the literature and the participants of the study. Because of this, the study will depend on the meanings that social actors (the SMEs and the experts) make of their social environments. The study will then dwell on interpreting these meanings. As a result, an interpretive stance is adopted to guide this research. In adopting interpretivist philosophy, the study was able to gain a deeper understanding of the SMEs and the social context in which these enterprises exist.

The interpretivist stance adopted in this study is presented in Table 4-1 as it relates to research purpose, ontology, epistemology and the methodology used (Creswell, 2007; Creswell, 2003; Easterby-Smith et al., 2002).

Table 4-1: Interpretivist assumptions in relation to the study

Assumptions	Description	This study
Research purpose	Understand and interpret social structures and the meaning people give to the phenomena.	Understand meanings that social actors (the SMEs and the experts) make of the enterprise's Absorptive Capacity and IT adoption strategy.
Nature of reality (ontology)	Reality is subjective and there are multiple and different constructs as perceived by participants in the study.	Quotes and themes in the words of the participants are used to present evidence of different perspectives.
Nature of knowledge (epistemology)	The researcher is a participant observer, making contact with the research subjects.	The researcher collaborates with the participants in an interactive process of listening, talking, reading and writing.
Methodology	The researcher uses inductive reasoning to provide rich data for theory building.	The researcher describes in detail the context of the study, concentrating on particulars before making generalisations.

Source: Adapted from Creswell (2003; 2007) and Easterby-Smith et al. (2002)

The adopted research approach for this study is presented in the following section.

4.3 Research Approach

Absorptive Capacity is considered to be a complex phenomenon (Cohen & Levinthal, 1990; Easterby-Smith & Lyles, 2005; Lane et al., 2006; Roberts et al., 2012). Moreover, a number of studies have suggested that IT adoption by SMEs is a complex socio-technical phenomenon (Caruso & Marchiori, 2003; Duncombe & Molla, 2009; Burges, 2002; Levy & Powell, 2005). SMEs are made up of individuals and other resources, and there is a constant interaction between individuals and resources within the SMEs (Ayyagari et al., 2007; Levy & Powell, 2005; Agbeibor, 2006). Therefore, attempting to view this complexity as simply figures and numbers would certainly prevent the true picture of the phenomena from being revealed. On AC theory, Murovec and Prodan (2009) submit that because of its qualitative nature it is challenging to measure it quantitatively.

In this research, the aim was to study events in their natural settings with the goal of interpreting phenomena in terms of the meanings people bring to them (Thorpe et al., 2008; Creswell, 2007). The study focuses on AC and the IT adoption strategies in Kenyan SMEs; as a result a qualitative research approach was adopted to explore these complex phenomena.

Qualitative research approaches are derived from social disciplines, and therefore, depend heavily on verbal descriptions of participants' experiences (Patton, 2002). The characteristics of a qualitative research approach are presented in Table 4-2 as adopted in this research (Creswell, 2007; Patton, 2002; Bygstad & Munkvold, 2011).

Table 4-2: Characteristics of qualitative approach with regard to this study

Characteristic	Description	This study
Natural setting	Data is collected in the field where participants are having the experience.	Multiple SMEs are used and the research participants are mainly drawn from the SMEs.
Researcher as main instrument	Data is collected by researcher using an instrument or through personal interaction.	Researcher personally uses instruments and personal interaction to gather data.

Characteristic	Description	This study
Multiple data sources	Different forms of data are collected by the researcher.	Data is collected by researcher using questionnaires, semi-structured interviews, document analysis, observation, still photos and expert reviews. Using these, the data collected will include quotes, themes in words and anecdotal evidence.
Inductive data analysis	The analysis of data is done inductively, recursively and interactively.	• The meaning the participants attached to the events was sought. • Attention was paid to particulars before generalising. • The data and feedback obtained from experts were collected and interpreted.
Participants' perceptions	Focus is on participants' perspectives and subjective views.	Data was collected using questionnaires and semi-structured interviews in terms of which participants' views on the study matter were sought.
Emergent design	Rigid design is not strongly prescribed.	There was openness to change in order to create responsiveness, and new paths of discovery were pursued as they emerged.
Theoretical lens	Using what is already known about the situation being studied.	A review of the relevant literature was carried out to provide a solid theoretical base for the study.
Interpretive inquiry	Researcher interprets what is heard, observed and understood.	Results were interpreted (through coding and thematic analysis) in context and were not limited to rigidly defined variables.
Holistic account	Develops a detailed picture of the issue being studied.	There was in-depth examination of the phenomena.

Source: Adapted from Creswell (2007); Braun and Clarke (2013); Bygstad and Munkvold (2011)

The section that follows presents the research strategy employed in this study.

4.4 Research Strategy

Research strategy is the plan used to go about answering the research questions (Marshall & Rossman, 2010). It is, therefore, an output of primary decisions made by the researcher in determining the most appropriate approach for addressing the research questions posed. Marshall and Rossman (2010) observe that research strategy helps to frame the study by demarcating it and identifying the focus.

There are various research strategies that can be employed in qualitative research, and these are now presented:

- **Grounded theory.** In terms of this strategy, empirical data is analysed in order to construct or verify a theory from the data (Creswell, 2003).
- **Content analysis**. This involves the identification of themes, patterns or biases from the content of human communication, such as books, music, television, human interaction and transcripts of conversation (Leedy & Ormrod, 2009).
- **Ethnography.** This is the use of observation to study the behaviour of a certain social group for a prolonged period of time (Creswell, 2003).
- **Phenomenological study.** In terms of this research strategy, the researcher identifies a phenomenon by the way in which it is perceived by the participants in the study (Leedy & Ormrod, 2009).
- **Action research.** In action research, a single researcher or a group of participants jointly conduct the research with the aim of improving the quality of the organisation (Thomas, 2004).
- **Case studies.** In a case study the researcher explores an individual, group, institution, organisation or community in depth in its natural setting (Creswell, 2003).

Case studies provide a means for investigating complex social phenomena that encompass holistically many aspects and characteristics of real life (Yin, 2009). A further clarification of the definition is provided by Benbasat et al. (1987, p. 370), who state that:

> A case study examines a phenomenon in its natural setting, employing multiple methods of data collection to gather information from one or few

entities (people, groups or organisations). The boundaries of the phenomenon are not clearly evident at the outset of the research and no experimental control or manipulation is used.

Furthermore, Dube and Pare (2003) observe that case study research continues to gain widespread acceptance in IT research.

Three reasons why case study research is appropriate are put forward by Benbasat et al. (1987):

1. The researcher can study the phenomena in its natural setting, learning about the state of the art and generating theories from practice.
2. Case strategy allows the researcher to answer 'how' and 'why' questions to be able to understand the nature and complexity of the processes taking place.
3. A case approach is ideal in researching areas with few previous studies.

All the three conditions for case study advocated by Benbasat et al. (1987) have been satisfied in this study:

1. The AC and the IT adoption strategies are assessed within the context of SMEs. This will allow the contextual issues surrounding AC and IT adoption strategies to be captured fully.
2. The '*how'* and '*why'* questions are used to address the main research question of this study which is: **How can Kenyan SMEs be supported to improve their IT adoption strategies through a model on Absorptive Capacity?** To address this main research question, case studies were used to answer the following related questions: 1) How does the Absorptive Capacity contribute to the organisational performance of SMEs in Kenya? 2) How effective are the IT adoption strategies employed by SMEs in Kenya? 3) How does Absorptive Capacity influence the choice of IT adoption strategy? 4) Why is the proposed model beneficial for SMEs in Kenya?
3. No known research has, to the best of the researcher's knowledge, been conducted to determine the AC and IT adoption strategies of SMEs in Kenya.

The reasons enumerated above provide a strong justification for the adoption of a case strategy approach for this study.

Case study research can be categorised as either a single case study, or multiple case studies (Yin, 2009). These two case study approaches are now defined (Yin, 2009):

- **Single case study.** This involves a single unit of analysis. It can be used to test a theory proposition or to represent a unique case.
- **Multiple case studies.** In this design several units of analysis are employed. This allows for the collection of large amounts of information from different sources.

Multiple case study design is always considered to produce a richer understanding of the phenomenon under study (Yin, 2009). Creswell (2007) affirms this, stating that an increased number of case studies deepens the understanding and explanation of a problem. For these reasons, this study adopts the use of a multiple case study strategy to examine the AC and IT adoption strategies of Kenyan SMEs.

The research design adopted in this study is now presented in the following section.

4.5 Research Design

Research design can be considered as the plan for the collection, measurement and analysis of the collected data (Cooper & Schindler, 2008). It shows how the investigation is going to be carried out to obtain answers to the formulated research questions.

Mohd-Noor (2008) suggests three major stages for a case study research process, namely: the preliminary stage which involves the formulation of theory, case selection and the design of research questions; the second stage, which is the fieldwork and analysis stage where different case studies are conducted, data is analysed and a report is written about this analysis; and finally, the third stage, which is the conclusion stage. In this final stage cross-case analysis is done, conclusions are drawn and theory is modified. This research process is illustrated in Figure 4-2.

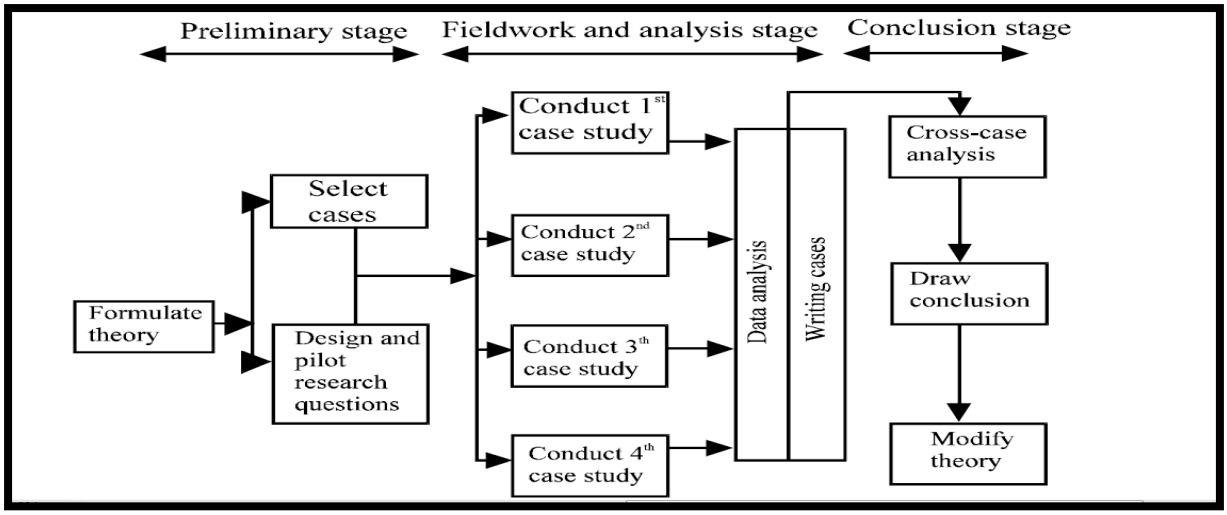


Figure 4-2: Research process

Source: Mohd-Noor (2008)

The objective of this study was realised through a study that was carried out in four phases, borrowing from Mohd-Noor's (2008) research process approach.

The first phase involved an explorative research into the literature, which facilitated the definition of the research problem and also a presentation of the research focus. The exploration into the literature was also conducted in order to present the theoretical framework by providing the theoretical lens for understanding AC and the strategy employed by SMEs in adopting IT. Further, study samples were identified, the necessary approvals sought and the cases formed. The major deliverables for this phase were a theoretical framework and the multiple cases.

The second phase involved the identification and preparation of data collection instruments. Once the data collection instruments were prepared, a pilot study was carried out to ensure that the research instruments were dependable. Further, based on the outcome of the pilot study the variables and the conceptual structure were adjusted accordingly. Having addressed all the issues arising from the pilot study, the multiple case studies were carried out and, subsequently, data was collected and analysed from the study sample. The main deliverable for this phase was the study findings.

In the third phase, based on the study findings and the literature review, the elements of the proposed IT Adoption Strategy Improvement Model (ITASM) were identified and discussed and their links to the findings described. Also in this phase,

the appropriate representation for the model was decided on. This draft model was the main output of this phase.

Finally, in the fourth phase, the draft model was subjected to expert reviews that comprised academics and practitioners with an interest in the topic and who were familiar with issues related to SMEs, AC and IT (see Table 6-1). This was done in a series of cycles, and the feedback obtained from these reviews was used to make modifications to the model; this process gave birth to the final model. At this stage too, appropriate documentation was formulated. The output for this final phase was the refined proposed ITASM and the thesis document.

A model is a representation of a reality and is primarily designed to aid in understanding, managing, controlling and changing that reality (Arsham, 2006). By ensuring that the model was designed using well-founded theories and results from empirical study, as well as subjecting it to cycles of reviews, it is able to meet the needs for which it has been designed.

Figure 4-3 summarises the research process adopted in the study. As illustrated in the figure, the outputs of one phase became the main inputs to the next phase.

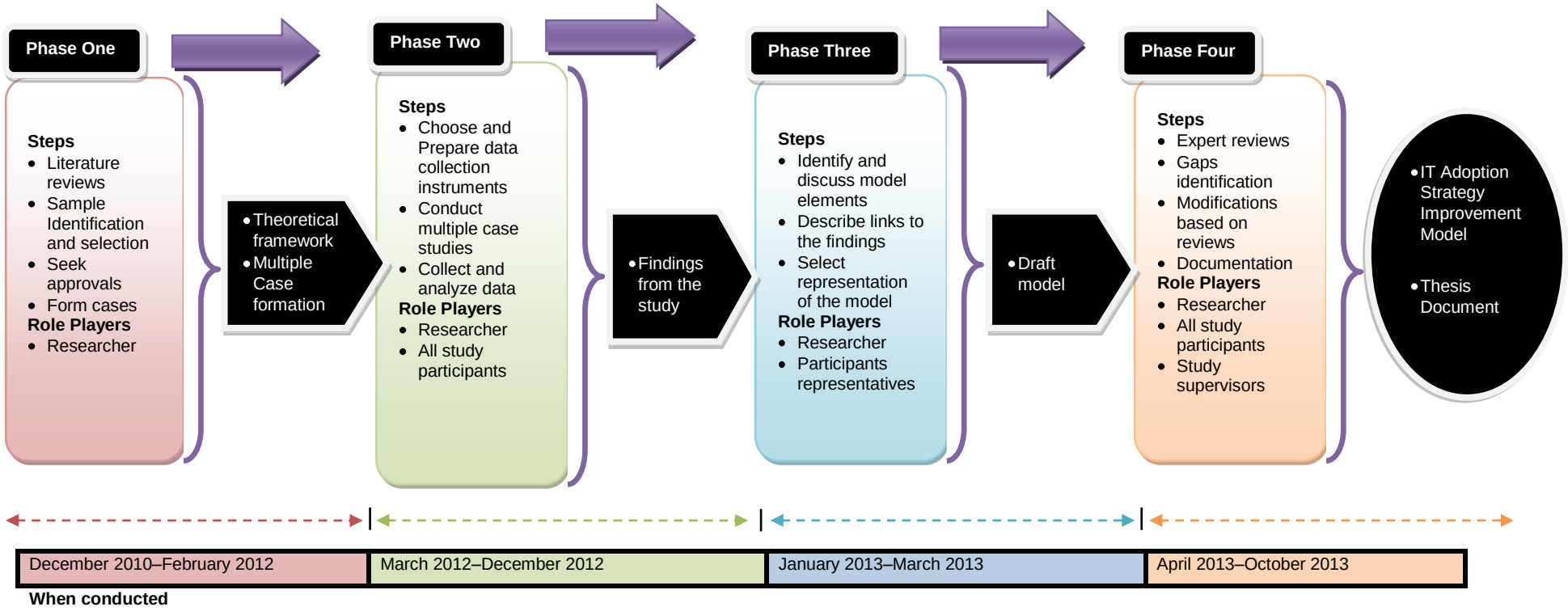


Figure 4-3: The study research process

Source: The researcher

4.5.1 Case Selection

The SMEs that were recruited to participate in this study were carefully selected (Yin, 2009) to include only those that had adopted the use of IT. This was done to ensure that the selected SMEs fitted the purpose of the study. The population of interest was defined as SMEs in the four major towns of Kenya, namely, Nairobi, Mombasa, Kisumu and Eldoret. These towns are located in the counties of Nairobi, Mombasa, Kisumu and Eldoret, respectively. The location of these towns on a map of Kenya is shown in Figure 4-4.

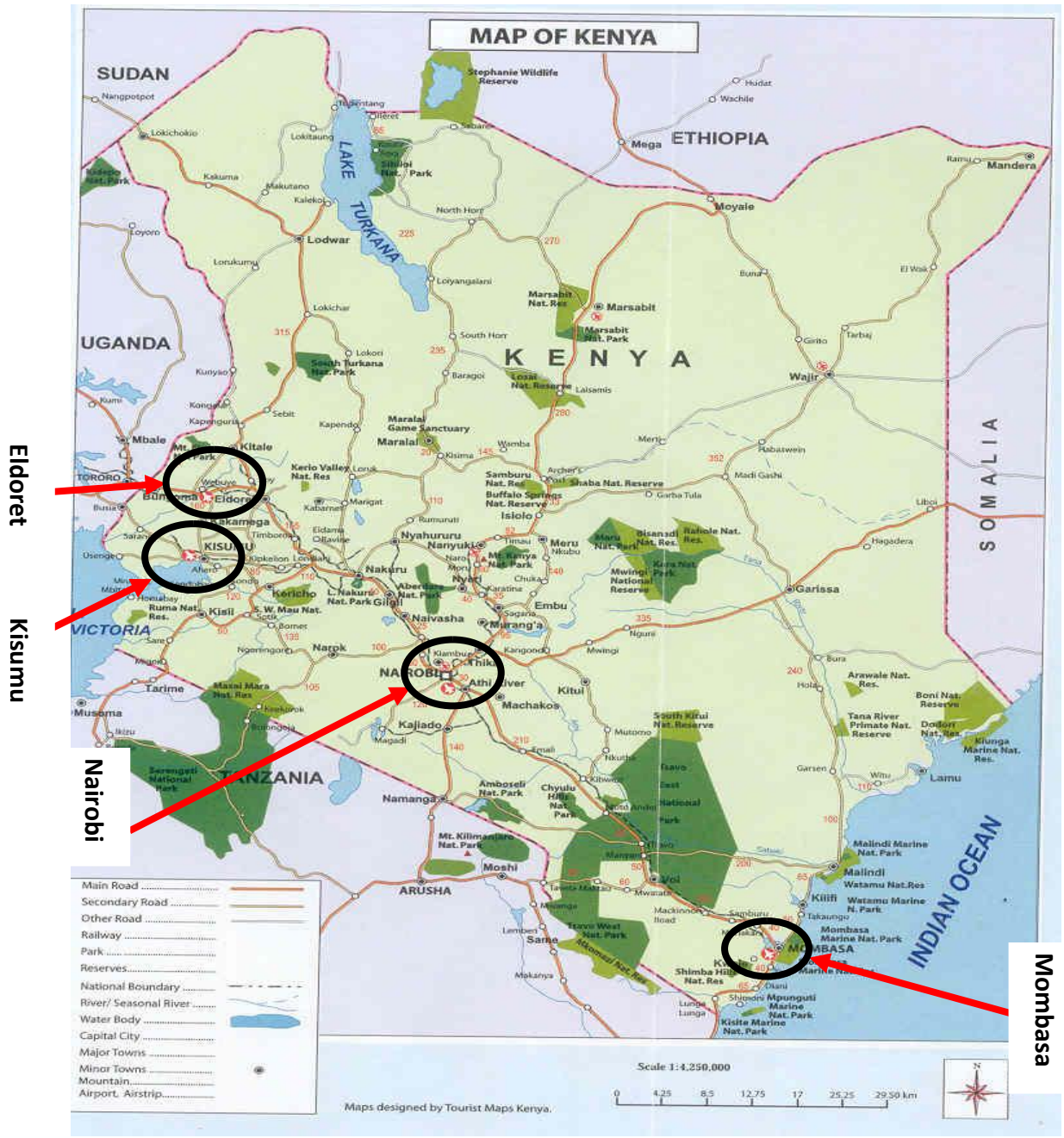


Figure 4-4: Location of study towns in Kenya

Source: KNBS (2010)

The participants were selected from across the industrial sectors of each county in order to provide a more comprehensive view of research issues and also to shed light on practical and theoretical implications for SMEs in different sectors and the research literature in this area of study. Two SMEs from each town were recruited to participate

in the study. From each SME, one SME owner/manager and two employees were recruited as study participants. The informants were purposefully chosen from the SMEs to include only those who were knowledgeable about the issues that were being researched and were willing to communicate about them. Of the employees who met these criteria, the two longest serving were requested to participate. The reason for this is because, by virtue of their long experience with the SME, they were more likely to have a deeper understanding of the happenings within the organisation and hence were better placed to provide more accurate and credible data on the issues raised by the research instruments.

Table 4-3 shows the number of participants from the sampled SMEs. Pseudonyms have been used in place of the real names of the SMEs as a measure to ensure their anonymity. The referencing of the SMEs is as follows: Eldoret: EdSME01 and EdSME02; Kisumu: KiSME01 and KisSME02; Nairobi: NaSME01 and NaSME02; and Mombasa: MoSME01 and MoSME02.

Table 4-3: Participants from the SMEs

Town	SME	Number of participants		Totals
		Owner/manager	Employees	
Eldoret	EdSME01	1	2	3
	EdSME02	1	2	3
Kisumu	KiSME01	1	2	3
	KiSME02	1	2	3
Nairobi	NaSME01	1	2	3
	NaSME02	1	2	3
Mombasa	MoSME01	1	2	3
	MoSME02	1	2	3
Totals	8	8	16	24

Source: The researcher

The subsection that follows gives a brief description of each of the SMEs that were recruited to participate in the study.

4.5.2 Case Description

The profiles of the eight SMEs that were recruited to participate in the study are presented in this section. To ensure the anonymity of the SMEs, letters are used to refer to them as reflected in Table 4-3.

A description of the cases used in the study is presented in Table 4-4.

Table 4-4: Description of cases

Name	Core business	Number of years in existence	Number of employees
EdSME01	Financial services	12 (since 2000)	15
EdSME02	Food services and guesthouses	22 (since 1990)	25
KiSME01	Retail shop	7 (since 2005)	12
KiSME02	Bookshop	18 (since 1994)	9
NaSME01	Financial services	15 (since 1997)	11
NaSME02	Software development	6 (since 2006)	10
MoSME01	Retail shop	8 (since 2004)	13
MoSME02	Food services and guesthouses	13 (since 1999)	19

Source: The researcher

4.5.3 Data Collection

The data collection process begins after the research problem has been defined and the research design delineated (Cooper & Schindler, 2008). There are two types of data that can be collected (Cooper & Schindler, 2008): the primary data which is collected for the first time, and the secondary data which is data that has been collected by someone else and has already undergone an analysis process. The data collected in this study included both primary data collected for the first time from the sampled SMEs and secondary data collected from various documents kept by the SMEs.

The process of data collection was conducted from May 2012 to December 2012. During the first few days of the field study, logistical issues such as transportation,

interview rooms and recording devices were addressed. Data was generated from information provided by the participants on their experiences of the AC and IT adoption strategies of their SMEs. To achieve this, questionnaires and semi-structured interviews were used as the primary tools for data gathering. In addition, observation, document analysis and still photographs were used to provide additional information. Subsequently, expert reviews were used to evaluate and validate the proposed ITASIM. These instruments are briefly described below:

- **Questionnaire**. A questionnaire consists of a number of questions printed or typed in a definite order on a form or a set of forms (Marshall & Rossman, 2010). These questions can either be open- or closed-ended questions. In qualitative research, open-ended questions are mainly used (Babbie, 2008). With this type of question, the respondents are not restricted in terms of their responses to the questions presented in questionnaire. Conversely, with closed-ended questions, the respondent is asked to choose from the options provided by the researcher in the questionnaire (Babbie, 2008). In this study, therefore, open-ended questions were used in the questionnaires (see Appendix C) for the SMEs.
- **Interview**. Interviews are a form of interrogation that involves the use of an oral or verbal conversation between the research participants (Yin, 2009). In qualitative studies, interviews are generally semi-structured or open ended (Yin, 2009; Myers & Newman, 2007). In a semi-structured interview, the interrogation is first initiated as unstructured by presenting the primary general question, and then concentrating on controlling the session by using certain questions to elicit more information. When it seems as if the respondent has given a complete response, the interviewer proceeds to a set of pre-planned questions. Creswell (2007) notes that this form of interview has a framework that guides the researcher, while at the same time allowing for additional information to be obtained and other avenues explored. In interviews, participants play an instrumental role; as such, their cooperation, assistance and responses are important for a successful interview (Creswell, 2007). In this study, the use of semi-structured interviews allowed the respondents to expand on responses and enabled further probing by the researcher if necessary. The interviews were

recorded (with permission) using a mini clip portable digital voice recorder to ensure accuracy in the collection of data. An interview guide (see Appendix D) was also used in order to manage the interview sessions effectively.

- **Observation**. During observation the researcher scrutinises the phenomenon without involving the respondent in order to deduce a particular outcome (Marshall & Rossman, 2010). Observation involves the physical act of keeping track of certain events and taking notes of what is observed. Marshall and Rossman (2010) note that this approach to data collection provides the researcher with an insider view of events, and enables original data to be collected at the point of occurrence. In this study, the researcher observed events within the SMEs to gain further understanding and clarity on research issues, as well as the context surrounding what the study participants said and did. Through observation, the researcher was able to study situations that had been described by respondents and check for incorrectness or distortions in actual events. Furthermore, using observation anecdotal records were made to provide additional information to support the data that had been obtained from the questionnaires and interviews.
- **Document analysis**. Organisational documents, such as reports, policy proposals, manuals, strategy documents, sales brochures, website information, accounting record, can when analysed be key in revealing certain insights within the organisation that would otherwise be difficult to discern using other data generation instruments (Braun & Clarke, 2013). This study made use of available letters, email communications, minutes of meetings as well as policy documents to validate claims made in responses to the questionnaires and interviews. Furthermore, document analysis was instrumental in closing the analysis gaps.
- **Still photographs**. Still photos can be used as a baseline for further discussions (Rose, 2007). Rose (2007) further notes that still photos can be used to elicit data that might otherwise through discussions be overlooked. In other words, some ideas, emotions, feelings are potentially elusive and difficult to capture in words (Marvasti, 2004). Thus, pictures can be used to capture such ideas, emotions or feelings. Marvasti (2004) further asserts that still photos can be used

to support certain findings, as they can provide visual evidence in support of certain claims. In this study, therefore, still photographs of each SME were taken during the process of data collection. These photographs were instrumental in supporting claims of IT usage in the SMEs. In addition, the photographs were used during the interview sessions to obtain more information from the respondents.

- **Expert reviews.** Researchers frequently use a team of experts to review the result/product of their project(s) (Jansen & Hak, 2005). Expert reviews are primarily used to reveal potential problems with a given product that is the subject of the evaluation process (Hobrook, Krosnick, Moore & Tourangeau, 2007). In order for experts to be able to provide a credible assessment it is important that they are familiar with the subject matter content of the product being evaluated; in other words, the experts' background and characteristics should be relevant to the subject matter. In this study the experts were carefully chosen to include only those who were knowledgeable on matters related to SMEs, IT, strategy and AC (see Table 6-1). Hobrook et al. (2007) observe that the number of expert should always be small and that any number between two and five is ideal. In this study the total number of experts who participated was five (see Table 6-1). To ensure that focus and scope was maintained and controlled during expert reviews, the same set of questions was given to all of them in order to elicit their views and perceptions (Jansen & Hak, 2005) on the validity of the proposed ITASIM and its implementation guidelines (see Appendix E).

The combination of different data collection instruments in this study helped provide a more holistic and better understanding of the phenomenon under study than would otherwise have been obtained.

The questions used in the questionnaire and during the interviews were designed to study the SMEs' AC (the SMEs' ability to recognise the value of external knowledge and the way in which they allow this knowledge to infuse into and permeate the firm, consequently exploiting it to their advantage) and their IT adoption strategy.

In any research endeavour the role of the researcher is an important consideration. While the researcher in an interpretive research study is normally actively involved, it is important for the researcher to decide in advance on the style of involvement to be adopted in the study. Walsham (2006) advocates for close involvement and asserts that such involvement can yield positive benefits as it enables the research participants to view the researcher as someone who is interested in making contributions that will help them (participants). Lack of such close involvement, Walsham (2006) observes, is likely to make the research participants view the researcher as someone who is merely keen on taking the data away for use in producing literature. In this study, the researcher personally administered both the questionnaires and the interviews.

To further explain the role of the researcher in this study, Burrell and Morgan's (1979) sociological paradigm, represented in Figure 4-4,was used.

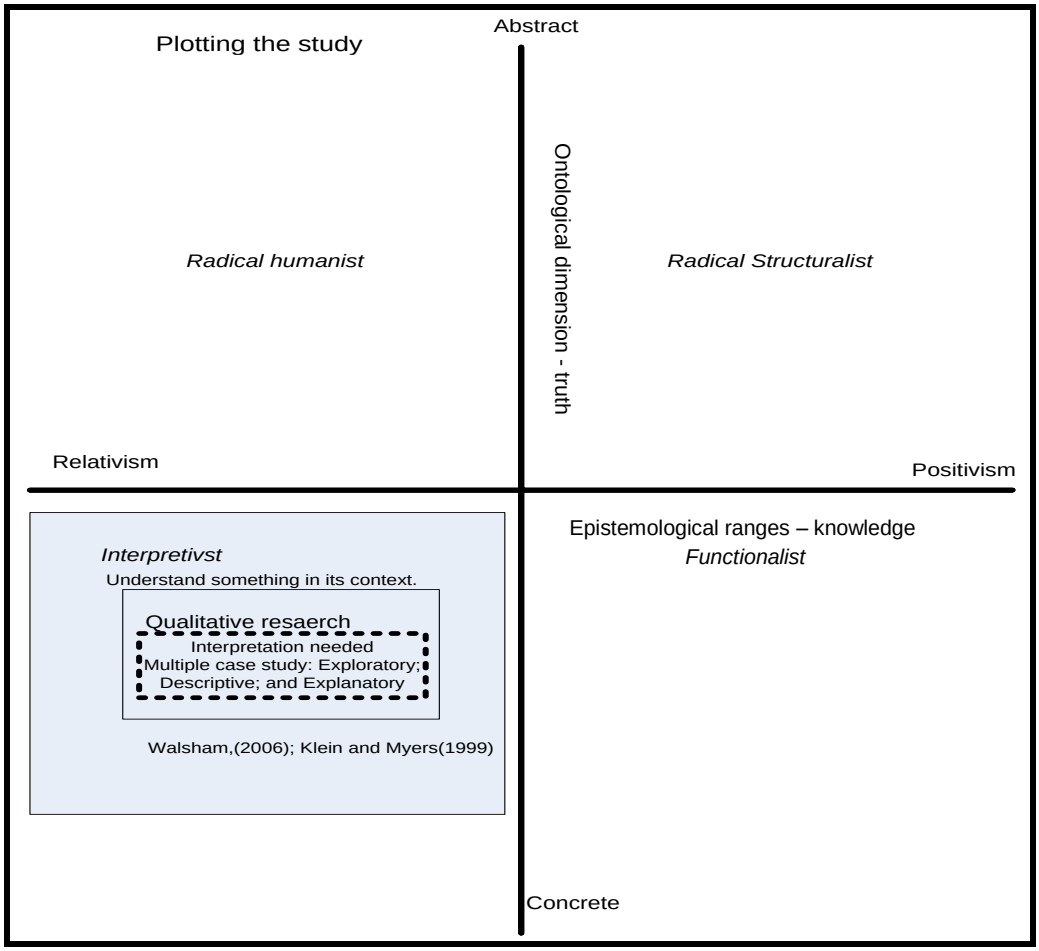


Figure 4-5: Interpretive paradigm

Source: Burrell and Morgan (1979)

In this paradigm, each quadrant matches a particular paradigm in sociology; most researchers tend to stay within one paradigm. The paradigm represents four mutually exclusive positions: the radical humanist; the radical structuralist; the interpretive; and the functionalist. These paradigms "underwrite the frame of reference, mode of theorizing and modus operandi of the social theorists who operate within them" (Burrell & Morgan, 1979, p. 23).

This study uses an interpretivist paradigm, which considers reality to be socially constructed by individuals. When using an interpretivist paradigm, the role of the

researcher involves understanding the phenomenon within its context. For this reason, the researcher in this study interacted closely with the study participants in order to understand the SMEs' AC and IT adoption strategies from their perspectives.

The field study commenced in May 2012 beginning with a pilot study of two SMEs.

4.5.4 Pilot Study

In this study, a pilot study was initially conducted in order to test the trustworthiness of the research instruments and also to ensure that the data collected from the research instruments adopted adequately addressed the research objectives. The pilot study commenced on 9 May 2012 and ended on 31 May 2012. Two SMEs were used in this pilot study, one from the town of Eldoret and another from the town of Kisumu. The selection of the two SMEs (**EdSME01** and **KiSME01**) was informed by two main reasons. Firstly, the ease of accessibility of the SMEs, and secondly, the researcher's past acquaintances with the two SMEs. The respondents in each of the two SMEs were asked to identify and change those items in the questionnaire that they considered to be confusing or offensive. They were also asked to give their views and comments on the questionnaire. The outcome of the process was impressive in terms of the refining of the research instruments. Nearly all the respondents were of the view that the questionnaire was simple and easy to complete. However, a number of suggestions were made with regard to reconstructing certain statements so that they would be easier to understand and, subsequently, certain adjustments were made to accommodate these suggestions.

The process that was used to analyse the collected data is presented in the following subsection.

4.5.5 Data Analysis

Once the data has been collected it has to be processed and analysed (Creswell, 2003). The processing of data involves editing, coding, classifying and tabulating the collected data so that it is ready for analysis (Cooper & Schindler, 2008; Leedy & Ormrod, 2009). Conversely, analysis involves breaking data into manageable themes, trends, patterns and relationships (Cooper & Schindler, 2008; Leedy & Ormrod, 2009).

The analysis process is conducted to provide an understanding of various constitutive elements of data by inspecting the relationships between constructs, concepts or variables and determining the elements of data that can be isolated or establishing themes in the data. We may, therefore, conclude that data analysis helps in summarising the collected data and organising it in such a way that it can answer the research question(s).

In this study data obtained from the research instruments was transcribed and coded.

Data transcription: The first data transcribed was that captured from the questionnaires. The second lot of data was obtained from the interview transcripts made from the digital recordings of the interviews. Those participants who did not consent to their interviews being recorded, notes were made.

Data coding: Coding involves sorting data on the basis of certain concepts and themes (Cooper & Schindler, 2008). This can either be done manually or using qualitative research software. The coding in this study was carried on manually and also with the help of qualitative research software NVivo 10 (QSR International, 2012).

In this study, a within-case and cross-case thematic analysis was carried out in line with the research focus (Yin, 2009). Accordingly, the main themes from each SME were identified from the collected data. The coding categories used were mainly drawn from the theoretical lens obtained from the literature review. The emergent categories were then organised into tables (in the manual process) and nodes (in NVivo) to facilitate comparison across the cases, which enabled an holistic case analysis (Creswell, 2003). In general, the study employed the six data analysis processes identified in qualitative research. The use of the six processes is summarised below (Creswell, 2003; Marshall & Rossman, 2010):

- **Reading or data Immersion:** this was done to understand the content and familiarise the researcher with the data. Further, emergent themes were identified and tentative explanations developed. During this process the quality of data obtained was also assessed.

- **Coding:** In this step, the identified themes were coded, and subthemes were identified and explored further. This was done alongside the data collection process. A few abbreviated words were used as codes. These included predefined codes based on researcher's prior knowledge (theoretical lens) and others that were developed on the basis of themes that subsequently emerged from the data. Two coding approaches were used in the study (Morse & Richards, 2002):
    - **Descriptive coding:** This was done to index data attributes such as the SMEs' industry, years in operation, number of employees, pattern of information flow within the SME, education level of owner/manager and employees.
    - **Topic coding:** This was used to index data on a particular topic. The topic coding included: 1) that related to Absorptive Capacity, such as participants' knowledge about who within the SME has what kind of information and participants' knowledge on what information is valuable to the firm; and 2) that related to IT adoption strategies, such as the decision-making process, the implementation process and evaluation.
- **Displaying data:** In this process, data related to each theme was displayed. Descriptive statistics in the form of charts and graphs were employed to display the results and anecdotal records were used to document observations.
- **Developing hypothesis, questioning and verification:** Here meanings were extracted from the data.
- **Data reduction:** In this step, the information was filtered to make visible the most essential concepts and relationships.
- **Interpretation:** This was the last process and it involved identifying the core meaning of the data. Triangulation was also applied to the data obtained from the different sources so that evidence could be compared and contrasted, and findings verified and validated.

The procedure detailed above was used to conduct the qualitative analysis and to interpret the data for this study.

Klein and Myers (1999) proposed a set of seven principles that can be used to effectively evaluate interpretive studies. These principles are the fundamental principle of the hermeneutic circle; the principle of contextualisation; the principle of interaction between the researchers and the subjects; the principle of abstraction and generalisation; the principle of dialogical reasoning; the principle of multiple interpretations; and the principle of suspicion. Table 4-5 gives a brief description of these principles and how they have been adopted in this study.

Table 4-5: Principles for interpretive research

Principle	Description	This study
Fundamental principle of the hermeneutic circle	Understanding of the complex whole is attained by understanding its parts and their interrelationships.	The main study objective was broken down into sub-objectives. When evaluating AC and IT adoption strategy, the two concepts were decomposed into the constructs from which they are built. These were then evaluated and insights brought together to further the understanding of the whole.
Principle of contextualisation	The researcher should seek to understand the phenomenon in its context.	The study was based on a Kenyan context and focused on AC and IT adoption strategy within the context of SMEs.
Principle of interaction between the researchers and the subjects	The data should be constructed through social interaction between the researcher and the research participants.	The researcher was an active participant in the study in that he engaged directly with the research participants by administering the questionnaires and conducting the interviews.

Principle	Description	This study
Principle of abstraction and generalisation	Relating unique facts or events revealed by data interpretation through the application of the fundamental principles of the hermeneutic circle and the principle of contextualisation to theoretical general concepts.	The idiographic details revealed by data interpretation were mapped to the theoretical concepts of AC and IT adoption strategies.
Principle of dialogical reasoning	The researcher should be sensitive to contradictions that may occur between the prior knowledge (theoretical preconceptions) guiding the research design and the actual findings of the study.	The first draft of the IT adoption improvement model was crafted mainly from the insights drawn from the literature and study findings – this formed the initial prejudice. The feedback obtained from the series of interactions with experts was used to refine the model.
Principle of multiple interpretations	Possible variations in interpretations among the research participants should be accommodated. As such, different sources of data should be sought to make multiple viewpoints available.	The data was obtained from different sources, namely: SMEs owners/managers, employees of the SMEs and the experts.
Principle of suspicion	Researcher should be sensitive to the possibility of biases and/or distortions in the data obtained from the research participants.	During interview sessions the respondents were asked to clarify facts obtained from the questionnaire that appeared inconsistent or unclear. Furthermore, through observation, the researcher obtained a first-hand feel for events in the SMEs, thereby checking for error or distortions in actual events.

Source: Adopted from Klein and Myers (1999)

Of the seven principles proposed by Klein and Myers (1999) and presented on Table 4-5, the principle of the hermeneutic circle is fundamental, as it is the basis upon which the other six principles are applied. The hermeneutic circle is the process used to interpret data and is premised on the notion that the whole cannot be understood without understanding its parts and the parts cannot be understood without comprehending the whole (Klein & Myers, 1999; Cole & Avison, 2007). Using these six principles, the researcher is able to understand various aspects of the phenomenon, each of which contributes to the understanding of the whole phenomenon. Klein and Myers (1999, p. 80) observe that:

> A researcher could use the principle to move back and forth between different interpretation … This activity would be guided by the goal to fill in any gaps or unresolved contradictions … that may persist, and would continue until the 'pieces of the puzzle' fit together.

The hermeneutic circle as applied in this study is presented in Figure 4-6.

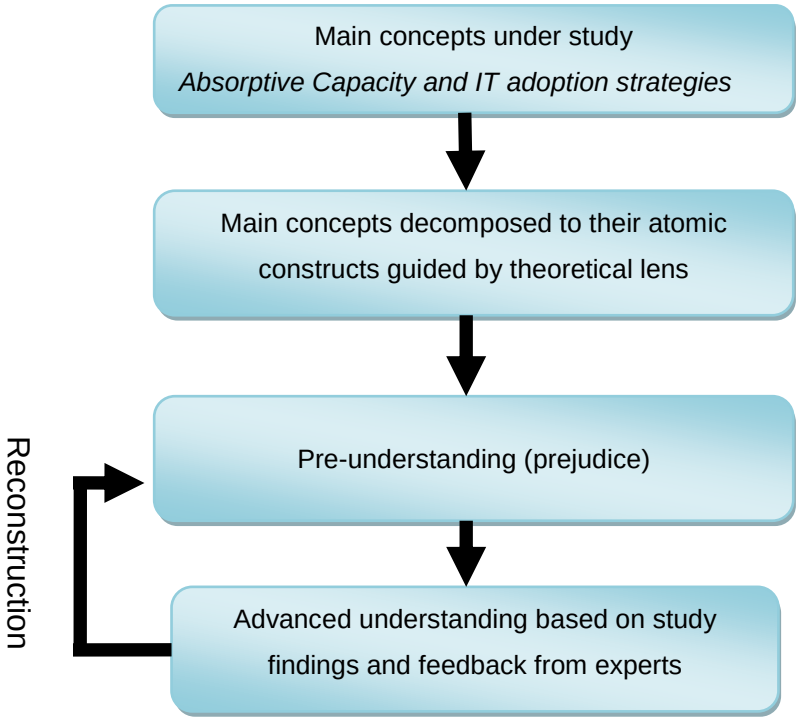


Figure 4-6: Hermeneutic circle as adopted in this study

Source: Adapted from Klein and Myers (1999) and Cole and Avison (2007)

As presented in Figure 4-6, the first step was the identification of study focus, which was to study the Absorptive Capacity and IT adoption strategies of Kenyan SMEs. The two main theories under study were then broken down into smaller parts using the theoretical lens in order to obtain a better understanding of them (Klein & Myers, 1999; Cole & Avison, 2007). This formed the basis of the initial prejudice. This initial prejudice was then reconstructed to reflect the new insights gleaned from the study findings and the feedback from the experts, thereby creating another prejudice that went through the same circle until the final study product (IT Adoption Strategy Improvement Model) was realised.

Figure 4-7 summarises the data analysis process adopted in this study.

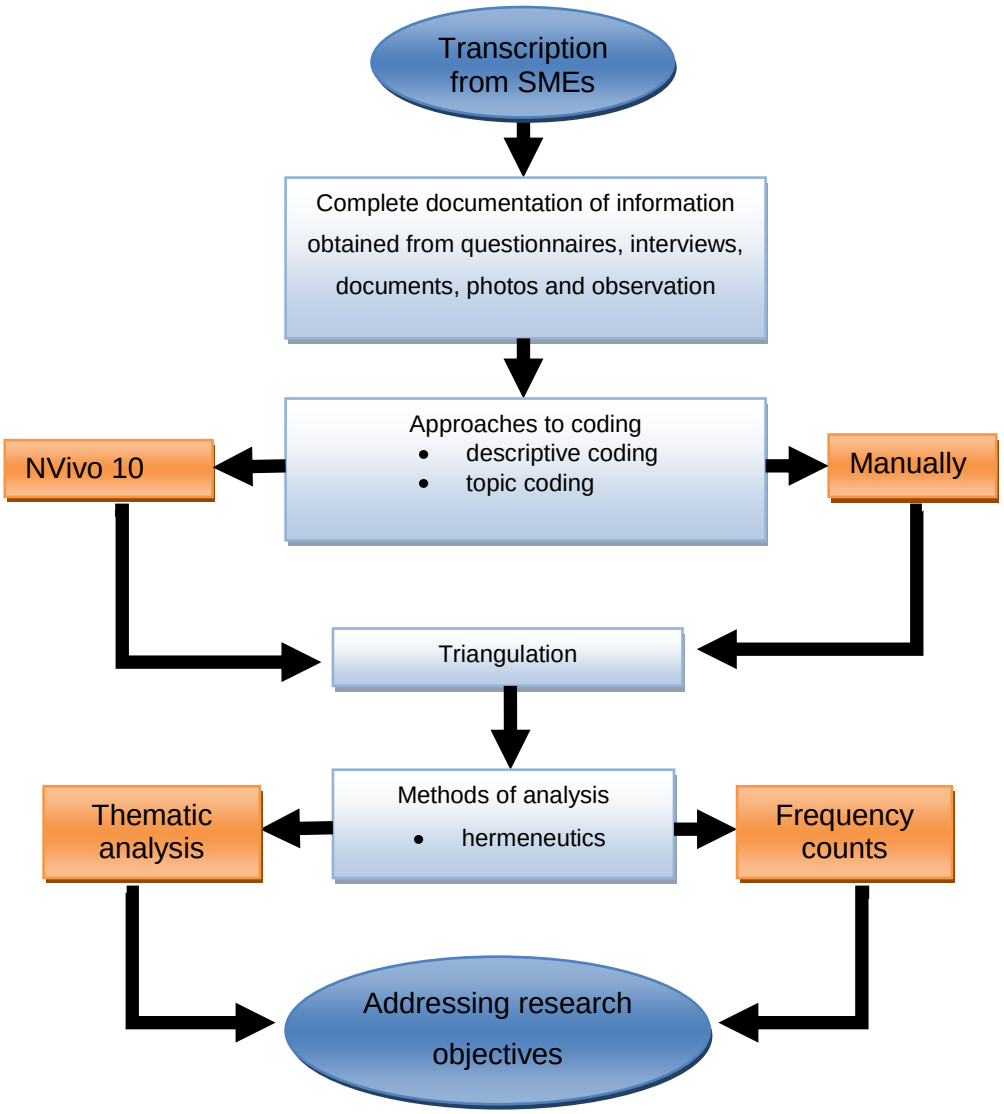


Figure 4-7: Summary of the data analysis process

Source: The researcher

4.5.6 Research Integrity

Research integrity can be considered as a general evaluative judgement of the extent of truth contained in the study (Saunders et al., 2009). Two issues that emerge with regard to research integrity are the dependability and the integrity of the research (Saunders et al., 2009). These two are briefly discussed below, including how they were addressed in this study.

- **Dependability:** Dependability refers to the ability to produce the same result if the study is replicated (Saunders et al., 2009). In this study, the following was done to ensure that the study is dependable:
    - The research design employed conformed to the philosophical stance adopted in the study.
    - Low inference descriptors were used to ensure a careful audit trail by recording (with permission) the interviews.
    - The use of standard questions in the questionnaires and the interview schedules used helped ensure that the research participants were asked similar questions.
    - The pilot study conducted provided an avenue for identifying potential problems with the research instruments and, where appropriate, corrections were made.
    - Finally, a clear detailed procedure was used for the analysis of data.

  With these, the dependability of the study was ensured.

- **Trustworthiness:** Trustworthiness is concerned with the accuracy of the collected data (Easterby-Smith et al., 2002). In qualitative research, two issues are primarily considered in this regard: credibility, which is the ability of the study findings to fit into a given theoretical framework, and transferability, which is the ability to generalise the findings from the study (Easterby-Smith et al., 2002).
  In this study, the following was done to ensure its credibility:
    - The codes used were obtained mainly from the literature and the themes produced were analysed in relation to those obtained from the literature.

- The views of academic colleagues (who had an interest in the topic and were familiar with the issues being researched) were sought with regard to associating the determinants/characteristics with suitable themes.

To ensure the transferability of the study, the following was carried out:

- The SMEs that were recruited to participate in the study only included those that had adopted the use of IT.
- The study used multiple case studies and cross-case analysis.
- SMEs from different geographical areas in Kenya were used.
- The SMEs used were taken from a cross-section of industries.
- The participants were requested not to answer questions unless they had directly observed, or had knowledge of, the variables in question.
- Evidence of the findings was represented in a manner that will enable the findings to be applied easily by others.

These measures verified the trustworthiness of this study.

Any research that involves humans raises certain ethical concerns (Saunders et al., 2009). The subsection that follows, therefore, presents the measures that were put in place in order to address the ethical concerns of this study.

4.6 Ethical Issues

Ethics can be defined as the norms or standards of behaviours that guide moral choices regarding our behaviours and our relationship with others (Saunders et al., 2007). Adhering to ethical norms in research is of the essence in any research work (Kothari, 2004).

Saunders et al. (2007) state that research is team work involving different people and, as such, great care should be taken to prevent any one being negatively affected by the research work.

To ensure that ethical principles were fully observed and to guarantee the confidentiality of the information supplied by the study participants and that which related to the SMEs that were recruited for the study, the following measures were taken:

- The Faculty Research and Higher Degrees Committee of the University of Fort Hare approved this study and its procedures, consequently giving it ethical approval.
- Formal approval was sought from the Ministry of Higher Education, Science and Technology and the National Council for Science and Technology in Kenya, and this was consequently granted (see Appendix A).
- The consent of all participants was sought before they became involved.
- The participants were fully informed about the purpose of the study, as well as the issues, benefits and risks arising from the study (see Appendix B);
- The confidentiality of the information provided was assured as was anonymity for both the participants and the SMEs.
- The transcripts and the recorded interviews were securely stored, and only the researcher and the study supervisors had access to the raw data.

Before the questionnaires were administered or the interviews conducted, all participants were given the information leaflet which outlined the nature, conduct, benefits and risks associated with the study and guaranteed the participants' anonymity and confidentiality (see Appendix B). Subsequently, the participants signed the informed consent form and, accordingly, participated voluntarily and acknowledged their rights to withdraw from the process at anytime without any consequences.

4.7 Conclusion

In this chapter, the methodological approach adopted in the study was presented and the justification for the selected methodology was also given. The chapter discussed the fact that an interpretive research approach was used in the study, which involved multiple case studies, and also presented the sampling design. The chapter further discussed the instruments that were used to collect data, and how this data was

analysed. Finally, the way in which the ethical concerns of the study were addressed was presented.

The research onion presented in Figure 4-8 summarises the research methodology adopted in this study.

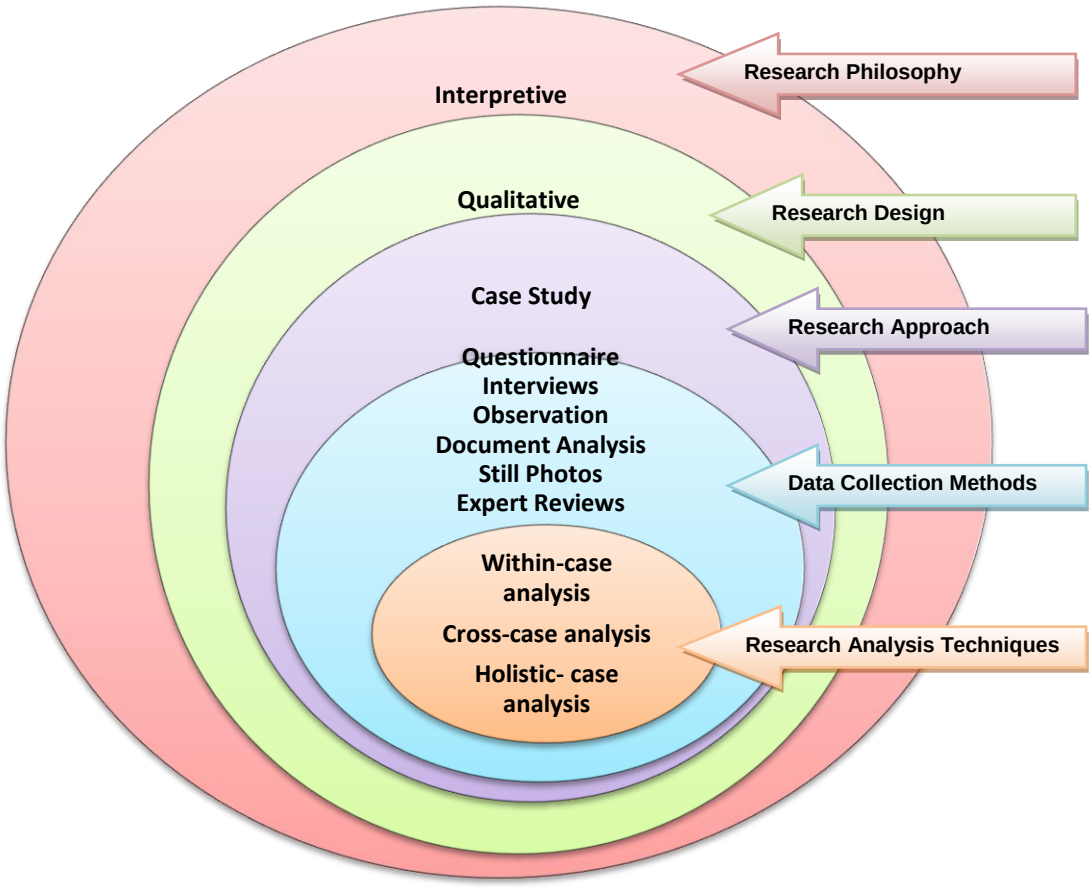
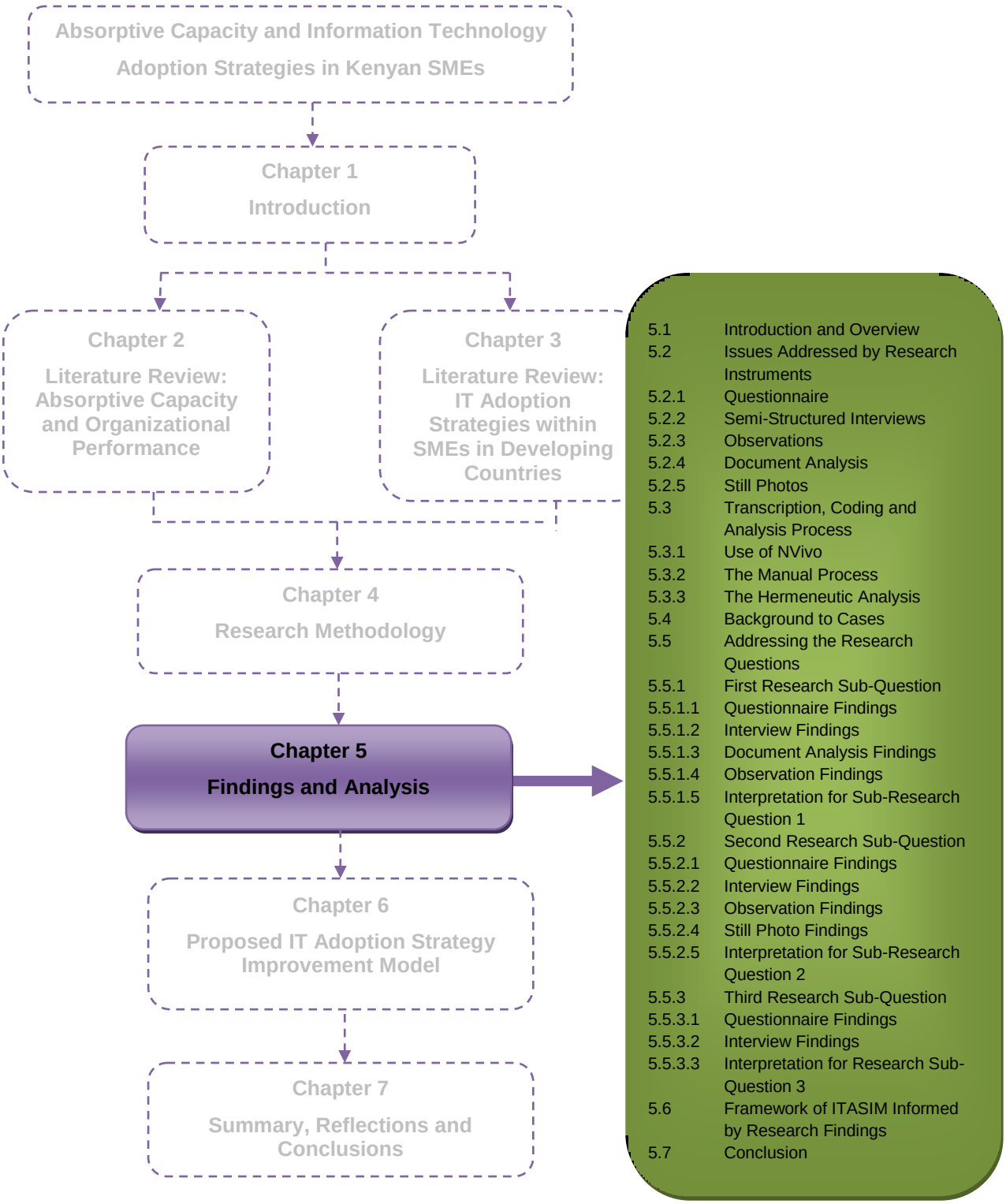


Figure 4-8: Research process onion as adopted in the study

Source: Adapted from Saunders et al. (2009)

In the next chapter, the findings of the study are presented and analysed.

CHAPTER 5 – DIAGRAMATIC OVERVIEW



CHAPTER 5
FINDINGS AND ANALYSIS

5.1 Introduction and Overview

The preceding chapter presented a road map showing how the research findings presented in this chapter were arrived at. The study was carried out in eight Small and Medium-sized Enterprises (SMEs) in the four major towns in Kenya, namely, Nairobi, Mombasa, Kisumu and Eldoret. The primary purpose of the study was to determine how SMEs in Kenya could be supported to improve their Information Technology (IT) adoption strategies using a model that leverages the rich aspects of Absorptive Capacity (AC). This purpose was realised by means of a data collection exercise. The instruments used to collect the data comprised questionnaires, semi-structured interviews, observation, still photos, document analysis as well as expert reviews. As presented previously (see section 4.2.3 and Table 4-1), the researcher adopted an interpretivist stance in this study with respect to the research purpose, the ontology, the epistemology and the research methodology used.

In this chapter the results obtained from the research instruments and the patterns of the results are presented. These findings are used to address the first three research sub-questions namely: 1) How does Absorptive Capacity contribute to the organisational performance of SMEs in Kenya? 2) How effective are the IT adoption strategies employed by SMEs in Kenya? and 3) How does Absorptive Capacity influence the choice of IT adoption strategy. The fourth research sub-question is discussed in Chapter 6. These research sub-questions informed the primary research question (How can Kenyan SMEs be supported to improve their IT adoption strategies through a model on Absorptive Capacity?), consequently resulting in the development of the proposed Information Technology Adoption Strategy Improvement Model (ITASIM) (see Chapter 6).

The remainder of this chapter is structured as follows: Following this introduction is a presentation of the various issues addressed by the research instruments. A brief discussion follows of the process that was followed to transcribe, code and analyse the data. This is then followed by a presentation of the background to the cases in order to provide the reader with a description of the SMEs that participated in the

study. Further, the background section provides the demographics of the study participants in each of the SMEs. The chapter then presents the findings addressing the research sub-questions and proceeds to indicate how the findings from each sub-question has added value to the proposed ITASIM. Finally, the chapter conclusion is made.

The use of different data collection instruments enabled a more holistic and better understanding of the phenomenon under this study. The particular issues that were addressed by each data collection instrument are presented in the next subsection.

5.2 Issues Addressed by Research Instruments

In this study the data was generated from participants' experiences with their SME's AC and the manner in which they adopted their IT solutions. In order to achieve this, the researcher made use of questionnaires and semi-structured interviews as the primary data gathering tools. On the other hand, observation, document analysis and still photos were used to provide additional information. Expert reviews were also employed to evaluate and validate the proposed ITASIM (see Chapter 6 Table 6-2). The participants in the study were purposefully chosen to include only those that were knowledgeable on the issues under study (see section 4.5.1).

5.2.1 Questionnaire

One questionnaire (see Appendix C) was constructed for both the SME management and the SME employees with the demographics section having a specific section for management (Part A) and the employee (Part B) to capture their demographic details. Three participants (one SME owner and two employees) from each SME filled in the questionnaire, giving a total of 24 study participants from all the eight SMEs (see section 4.5.1).

The questions formulated in the questionnaire were grouped on the basis of the two broad themes of this study, namely, Absorptive Capacity and IT adoption strategies. Table 5-1 is used to provide a summary of the themes and the objectives of the questions as they appeared in the questionnaire.

Table 5-1: Structure of questionnaire

Question no.		Themes	Objectives
Part A: 1–9 Part B: 1–3		General information	To establish the background of both the SMEs and the study participants.
Part C:	1–3	AC – Acquisition	To determine the ability of the SME to locate, identify, evaluate and acquire relevant external information. Further, to determine how this contributes to its performance.
	4–8	AC – Assimilation	To establish the capability of the SME to analyse, classify, process, interpret and eventually internalise and comprehend the external information through its own routines. Also, to determine how assimilation contributes to its performance.
	9–15	AC – Transformation	To find out the SME's capacity to bring the existing information together with the newly acquired information. Additionally, to determine how the element of transformation contributes to its performance.
	16–18	AC – Exploitation	To find out the ability of the SME to bring together information acquired, assimilated and transformed for its application and use. Further, to determine how exploitation contributes to its performance.
Part D: 19–29		IT adoption strategy	To establish how the SMEs adopted their IT solution(s), the effectiveness of their approach and how their AC influenced the manner in which they adopted their IT solution(s).

The next subsection presents the issues that were addressed by the semi-structured interviews.

5.2.2 Semi-Structured Interviews

Individual interviews were carried out in this study. To ensure consistency in the questions that were asked, the researcher used an interview guide (see Appendix D) which contained the questions that were to be posed to the respondents. All the participants who participated in this study were interviewed with exception of the

manager of SME MoSME02 (one of the SMEs from Mombasa) who as a result of other commitments was not available to be interviewed. Accordingly, a total of 23 people were interviewed at various times depending on their convenience and availability.

The interviews were conducted on the premises of the SMEs in private offices in order to avoid interruptions during the interview sessions. A single interview guide was used for both the management and the employees. The interview questions were categorised into two sections, each falling into one of the two broad themes of the study (Absorptive Capacity and IT adoption strategies). The interviews were used to elicit a deeper understanding of the issues raised in the questionnaire. Table 5-2 provides a summary of the themes and objectives of the interview questions.

Table 5-2: Structure of interview guide

Question Number	Themes	Objectives
1–4	AC and organisational performance	To determine how the SMEs AC contributes to its performance.
5–7	IT adoption strategies	To establish the process that was followed by the SME in adopting its IT solution(s), its effectiveness and how the SME's AC influenced its IT adoption strategy.
8	No particular theme	To allow the participant to provide any other relevant information on issues raised during the interview session.

The relevance of observation as a data gathering technique in this study is discussed in the next subsection.

5.2.3 Observations

Since the interviews were carried out on the respondents' premises, it was possible for the researcher to observe the happenings around him wherever and/or whenever it was convenient during the interviews sessions. The researcher kept track of certain events that took place within the SMEs and took notes (anecdotal records) of what was observed.

To ensure the consistency, focus and objectivity relating to research issues during observation, the following questions were used as guidelines to guide the process:

- What elements of AC can be observed in the SME?
- What technology is in use in the SME?
- Do the users of the technology appear conversant with it?

A description of what was observed in terms of each guideline was then recorded immediately by the researcher to ensure that the details of what was observed were not lost. These were later analysed to understand what they meant and, consequently, their implications for the study. Figure 5-1 provides a summary of how observation was carried.

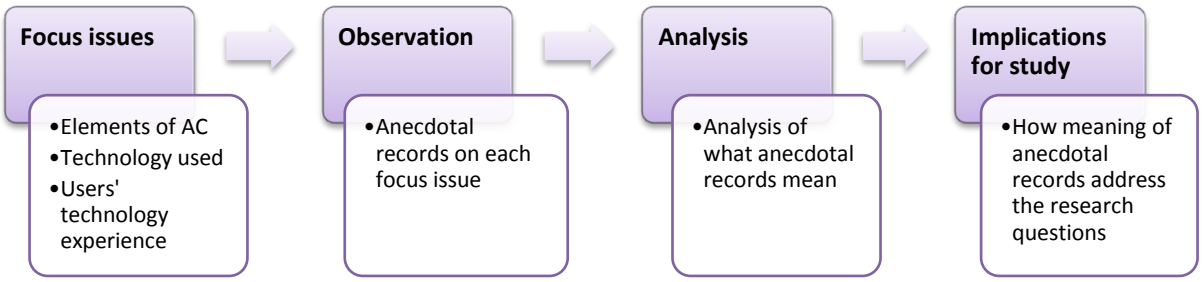


Figure 5-1: Observation process

Table 5-3 gives a sample of how anecdotal records were captured by the researcher.

Table 5-3: Samples of anecdotal records

Anecdotal records	
Name of SME: EdSME01 **Date of observation:** 20–21 Sept 2012 **Time:** 16:00–17:00	**Observation comments** **Elements of AC:** The SME manager is constantly active and in frequent consultation with other workers. Employees could be heard making phone calls to clients and other partner organisations. During the interviews the participants were more comfortable and forthcoming, openly expressing their perceptions regarding questions asked. The employees' work stations appear well organised and customers treated with a lot of courtesy. **Technology used:** The SME has 5 desktops, a laptop, a printer, a photocopier, a fax machine and an electronic tax register (ETR). The desktops and the laptop operate on Windows XP. Internet access is available and e-mail is used to communicate with customers and other partners. The SME uses an accounting software package. **Users' experience with the technology:** Workers who have computers on their desks appear well versed in using the system as none could be observed facing any challenges in using the technologies adopted.
Name of SME: KiSME01 **Date of observation:** 5 Oct 2013 **Time:** 15:00–17:30	**Observation comments** **Elements of AC:** There is minimal consultation among members of the SMEs. The two employees interviewed appeared less comfortable in openly expressing themselves. The records section is heavily cluttered with lots of papers/documents on the tables and shelves. Most processes are manual and this explains the heavy presence of papers. The employees appear overwhelmed with much work as they are seen running around attending to various tasks. **Technology used:** There are only two desktop computers in use, one at the counter to serve customers and the other used by the manager. The IT solutions used are an inventory management system, a point of sale application and an ETR. **Users' experience with the technology:** The user of the point of sale application appears well versed in the application and was using it with a lot of ease. The manager using the inventory management system was at one point seen asking for help in running the system.

Secondary data, in the form of documents from the SMEs, was also used to address the research questions. The subsection that follows presents the issues that were addressed by analysing the documents that were made available by the SMEs.

5.2.4 Document Analysis

Secondary data sources cover materials that are already in existence and the researcher has no role in their production (Braun & Clarke, 2013). This may include magazines, information leaflets, documents and websites, among others. Through the analysis of various documents, it was possible to explore practices and experiences, as well as the understandings of individuals in the SMEs in relation to the research issues, thereby reinforcing the findings from the other research instruments. Further, the documents analysis was instrumental in closing the gaps during the data analysis.

Although most of the SMEs were not keen to produce documents, citing sensitivity, after prolonged negotiations with the management of the SMEs the researcher managed to obtain some documents from six (EdSME01, EdSME02, KiSME02, NaSME01, NaSME02 and MoSME01) out of the eight SMEs. The documents accessed include minutes of meetings, policy documents, letters and employee profiles.

The following subsection focuses on the relevance of the still photos to this study.

5.2.5 Still Photos

A number of photos were taken in the SMEs (with permission). Although consent is a complex issue in visual data (Rose, 2007) and bearing in mind the fact that anonymity that was guaranteed in this study (see section 4.6), this could potentially be compromised if the photos were to be reproduced after the data analysis. Accordingly, care has been taken by the researcher to reproduce photos that do not directly reveal the identities of the participants. Moreover, in instances where the identity could not be hidden and there was need to reproduce the photo for the purpose of this study, direct permission was sought from the affected individuals.

The photos were either used as data in themselves where the researcher directly gained certain insights from the photos, or as data generators where they were used as a baseline for further discussions during the interview sessions (Rose, 2007). This

was practical in instances where the photos captured something that was contextually relevant to the topic under discussion. For instance, photos of computers lying idle and not being used led to a discussion on why there was minimal usage of the adopted technology.

The photos also provided the researcher with visual evidence to support the research findings. That is to say, where the researcher had arrived at certain conclusions, photos were used where relevant to support some of the findings.

In the next section a detailed presentation is made on the way the processes of transcription, coding and analysis were carried out using both qualitative research software NVivo version 10 and the manual process (see Figure 4-7). Further, the section outlines the way in which the hermeneutic (see Figure 4-6) principle was applied in the analysis.

5.3 Transcription, Coding and Analysis Process

One of the advantages of a qualitative research design is its flexibility in allowing the researcher to begin reviewing (transcription, coding and analysis) the data at any point during the data collection period (Creswell, 2007). This is in sharp contrast with quantitative research where such review can only begin after all the data has been collected. In this study, the researcher took advantage of the flexibility offered by the qualitative research design to begin the data review process as soon as the feedback started trickling in from the research respondents.

The next subsection presents the way in which the study employed the use of Computer Assisted Qualitative Data Analysis Software (CAQDAS) NVivo.

5.3.1 Use of NVivo

The choice of NVivo (QSR International, 2012) was made because of its rich features that support qualitative data analysis. In addition to this, the researcher was more conversant with the software owing to past experience in using the same.

Unlike quantitative software that can be exclusively relied on by the researcher to carry out various statistical tests and perform analysis, Guest, MacQueen and Namey (2012) observe that qualitative data analysis software can be useful in the management, exploration and discovery of patterns; however, such software should

not be used to replace the role of the researcher in analysing data. In this study, this critical role of the researcher in qualitative research was not lost; as a result, NVivo was mainly used to reinforce the manual process in order to offer more consistent, efficient and comprehensive data analysis to ensure that the findings were more credible.

The first task in the application of NVivo was to create a repository for all the files containing data from different sources (questionnaires, interviews, and photos). These were grouped into folders representing each of the eight SMEs that participated in this study. These materials from different sources were then gathered under themes (codes). Some of the themes used included strong Absorptive Capacity, weak Absorptive Capacity, information acquisition, organisational performance and IT adoption among others. This information (themes/codes) was then stored as nodes with each node representing a code/theme. This made it possible to apply the codes consistently throughout the data analysis process. Each node was used as a repository for all references (from different research instrument) that related to the theme.

Further, using NVivo it was possible to link and group various subsets of data and assign labels or relationships to them. This was particularly useful during the analysis as it was possible to create associations that could be searched. For example, a matrix coding was used determine what participants in SMEs with strong/weak AC say about the decision phase of their IT adoption strategy; a coding query was used, for example, to find a correlation between AC and organisational performance or to determine the connection between AC and IT adoption strategy. A consolidated view of all the query results was obtained in order to form a complete picture of the entire process. Consequently, visual displays were created to further enable the researcher to develop insights into research issues and conclude the analysis process. Figure 5-2 shows a summary of how NVivo was used to help realise the objectives of this study.

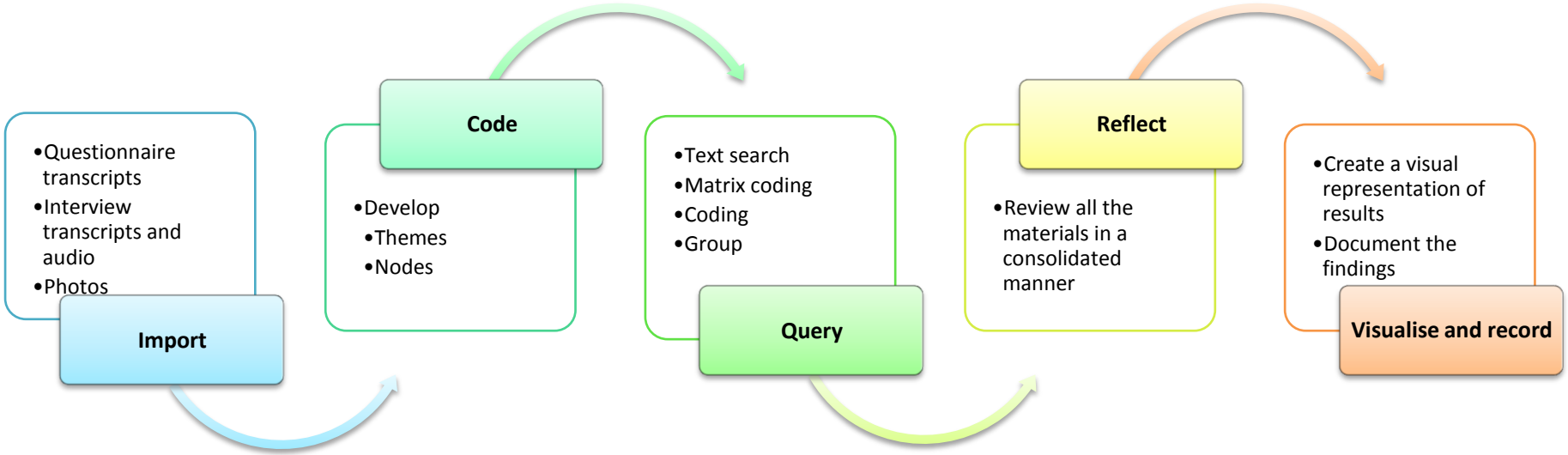


Figure 5-2: Data analysis using NVivo

In the following subsection the way in which the manual process was applied in the transcription, coding and analysis of the data in this study is presented.

5.3.2 The Manual Process

As indicated in the previous subsection, the use of the qualitative research software was intended to reinforce the manual process of data analysis in this study.

Creswell (2007) observes that it is important for the researcher in the analysis process to first become familiar with the data. In this study the researcher immersed himself in the data by reading and re-reading the responses to questionnaires, interview transcripts, anecdotal records, and documents, in order to become familiarised with the data. For the audio data a similar approach was adopted in which the recording was replayed (repeated listening). This process was started as soon as the first set of data was received from the respondents. Moreover, for the visual data (photos) the viewing was done a couple of times as a familiarisation process. During this process it was possible for the researcher to begin noticing things that were of interest to the study and this ranged from loose general impressions of the data to more solid and precise issues. Braun and Clarke (2013) observe that it is important to keep a record of things noticed during this initial familiarisation process.

Following this familiarisation exercise the data from questionnaires (text data) was examined and interviews (audio data) was transcribed to written language. To ensure that the audio transcription was consistent and clear, a transcription notation system was used (Braun & Clarke, 2013). This was done because the need for thoroughness and quality in the transcription process cannot be over-emphasised (Braun & Clarke, 2013; Creswell, 2007). Table 5-4 indicates the audio transcription notation system as was adopted in this study.

Table 5-4: Transcription notation

Feature	Notation
Pausing	(.)
Non-verbal utterances	'err'
Spoken numbers	Spell out all numbers
Laughing, coughing etc	((laughs)), ((coughs))
Identity of the speaker	The speaker's pseudonym
Omitted words	(…)

Source: Adapted from Braun and Clarke (2013)

The main themes from each SME were then identified (within case analysis) and these were used as codes. Tables were then created to organise the themes so as to facilitate comparisons across the cases (cross-case analysis). Both descriptive and topic coding were employed in this study (see section 4.5.5).

In the tables that were created, a plus sign (+) was used to indicate when the respondents' comments were positively slanted towards a particular theme and a minus sign (-) when the comment was negatively directed towards a particular theme. Consequently, an asterisk (*) was used if the comment was not slanted towards any of the themes. Table 5-5 gives an example of how this was done (with a sample of five respondents); in this case the intention was to identify whether the SME had a strong AC or a weak AC.

Table 5-5: Manual coding system

Respondents	Themes	
	Strong AC	Weak AC
EdMgr1	+	-
EdMgr2	-	+
KiMgr1	-	+
KiEmp2	-	+
NaEmp3	+	-

As indicated in the previous chapter the principle of the hermeneutic circle (Klein & Myers, 1999) was used in this study to aid in the interpretation of data. The usage of

this principle in the analysis of the data in this study is presented in the subsection that follows.

5.3.3 The Hermeneutic Analysis

This study employed hermeneutics (see section 4.5.5) to aid in finding meaning in the data that was collected using the questionnaires and interviews. In terms of this principle, the researcher obtains an understanding of the whole by understanding the parts and vice versa (Klein & Myers, 1999; Cole & Avison, 2007). The main concepts of the study (Absorptive Capacity and IT adoption strategies) were decomposed into their atomic constructs. For example, AC was broken down into acquisition, assimilation, transformation and exploitation. The IT adoption strategy was broken down into decision, implementation and evaluation stages. This formed the initial pre-understanding of the issues under study.

Successive circles of reviews of data were conducted which added to the overall development of the themes that were used to address the research questions. Hermeneutic principle was also employed in reviews of the ITASIM drafts, where every circle of review led to refining the model until the final model was developed.

This study now moves to the presentation of the background to the SMEs and the study participants.

5.4 Background to Cases

This section provides background details that will be useful in understanding the nature of the SMEs that participated in the study. These details include SME demographics as well as those of the study participants. This background was captured by the demographic section of the questionnaire (see Appendix C) which helped to provide an understanding of the study population in terms of its distribution and composition.

This section provides the code name (see Table 4-3) for the SMEs (this was done to ensure anonymity), its location, the industry to which the SME belongs, the number of years it has been in operation, the number of employees (both permanent and contract), as well as the academic background of the study participants. This information was instrumental in helping the researcher to discern and distil the data during the analysis of the findings. It also enabled a more contextualised analysis

which ensured that the conclusions made were valid and unbiased as the demographic elements were taken into consideration to support the claims. This is particularly important in qualitative research where data is not treated in isolation but is understood within the context in which it is presented (Braun & Clarke, 2013).

Table 5-6 is used to provide a summary of the SME demographics.

Table 5-6: Demographics of the SMEs and study participants

Name of SME	Location	Industry	IT solution(s) used	Years in operation	No. of emp. on permanent terms	No. of emp. on contract terms	Total no. of employees	Educational background of the manager	Educational background of 1st employee participant	Educational background of 2nd employee participant
EdSME01	Eldoret	Financial services	• Accounting package • Fax machine • Electronic tax register • Printer, photocopier & email	12	10	5	15	Bachelor of Commerce	Bachelor of Business Administration in Finance	Bachelor of Accounting
EdSME02	Eldoret	Food services & guesthouses	• Accounting solution • Electronic tax register • Printer & email	22	18	7	25	Higher Diploma in Hotel Management	Higher Diploma in Tourism	Higher Diploma in Hotel Management
KiSME01	Kisumu	Retail shop	• Inventory management • Point of sale • Electronic tax register	7	2	10	12	Diploma in Development Studies	Higher Diploma in Business Management	Certificate in Secondary Education
KiSME02	Kisumu	Bookshop	• Point of sale application • Electronic tax register • Accounting solution & email	18	3	6	9	Bachelor of Development Studies	Certificate in Secondary Education	Diploma in Business Studies
NaSME01	Nairobi	Financial services	• Accounting package • Electronic tax register • Printer, photocopier & email	15	8	3	11	Bachelor of Financial Management	Bachelor in Business Management	Certified Public Accountant
NaSME02	Nairobi	Software development	• Applications development solutions • Electronic tax register • Printer & email	6	8	2	10	Bachelor in Computer Science	Bachelor in Software Engineering	Bachelor in Computer Science
MoSME01	Mombasa	Retail shop	• Point of sale application • Inventory management solution • Electronic tax register	8	9	4	13	Higher Diploma in Business	Certificate in Secondary Education	Certificate in Secondary Education
MoSME02	Mombasa	Food services & guesthouses	• Point of sale application • Accounting solution • Electronic tax register	13	5	14	19	Bachelor of Hospitality and Tourism	Higher Diploma Business	Certified Public Accountant

In the next subsection the study findings and analysis addressing the first three research sub-questions are presented.

5.5 Addressing the Research Questions

The study employed the use of multiple case studies. This made it possible for an in-depth study on the SMEs by using different data collection instruments such as questionnaires, interviews, observation, document analysis and still photos (Creswell, 2007).

The primary research question addressed in this study is:

How can Kenyan SMEs be supported to improve their IT adoption strategies through a model on Absorptive Capacity?

To ensure the effectiveness of the data collection instruments, the primary research question was broken down into sub-questions and different data collection instruments were employed to address each of them.

The Table 5-7 shows the various sub-questions and the research instruments employed to collect data to address them.

Table 5-7: Data collection instruments used to address research questions

Sub-questions	Questionnaires	Interviews	Document analysis	Observation	Still photos
1. How does AC contribute to the organisational performance of SMEs in Kenya?	Yes	Yes	Yes	Yes	No
2. How effective are the IT adoption strategies employed by SMEs in Kenya?	Yes	Yes	No	Yes	Yes
3. How does AC influence the choice of IT adoption strategy?	Yes	Yes	No	No	No
4. Why is the proposed model beneficial for Kenyan SMEs?	Yes	Yes	No	No	No

Permission was initially sought from the management of the SMEs to allow the researcher access to their enterprise and for their participation. This was verbally granted by the management of all the eight SMEs. All ethical considerations as outlined in Chapter 4 (see section 4.6) were adhered to throughout the case studies of all the SMEs that participated and all participants signed the consent form (see Appendix B). In line with the assurance of anonymity for the study participants, the following codes as indicated in Table 5-8 are used to represents the participants.

Table 5-8: Participants codes

SME	Owner code	Employees code	
EdSME01	EdMgr1	EdEmp1	EdEmp2
EdSME02	EdMgr2	EdEmp3	EdEmp4
KiSME01	KiMgr1	KiEmp1	KiEmp2
KiSME02	KiMgr2	KiEmp3	KiEmp4
NaSME01	NaMgr1	NaEmp1	NaEmp2
NaSME02	NaMgr2	NaEmp3	NaEmp4
MoSME01	MoMgr1	MoEmp1	MoEmp2
MoSME02	MoMgr2	MoEmp3	MoEmp4

Based on the commonalities that become evident from the findings on the cases, the SMEs were grouped into two distinct categories: one that exhibited strong AC (those that effectively identified relevant external information, acquired it, assimilated, transformed and consequently exploited it for commercial ends) and the other that exhibited weak AC (those that rarely or never identified relevant external information, never or seldom acquired it, neither assimilated, transformed nor exploited it for commercial ends. Moreover, if they did so, it was not part of a deliberate effort). This understanding of varying levels of AC within different firms is premised on the empirical findings of other researchers such as Lane et al. (2006); Cohen and Levinthal (1990); Chen (2004); Volberda et al. (2010); and Brokel and Binder (2007), who have established in their findings that such variations do indeed exist.

Through the use of NVivo two nodes, called *Strong AC* and *Weak AC,* were used as repositories for highlights of extracts that indicated strong AC and weak AC

respectively. The extracts were taken from the questionnaire responses and interview transcripts. From these, a group query was used to find those SMEs that were associated with either the *Strong AC* node or the *Weak AC* node. The findings indicated three SMEs (EdSME01, KiSME02, and NaSME02) as being associated with the *Strong AC* node. Consequently, five SMEs (EdSME02, KiSME01, NaSME01, MoSME01, and MoSME02) were associated with the *Weak AC* node.

The classification of the SMEs into two groups ensured that the study focus was maintained throughout the findings analysis process, as it was possible to compare and contrast the two groups.

The preceding discussion provides the justification for clustering the SMEs into a particular category.

SMEs with Strong AC:

EdMgr1 mentioned that, in their monthly plans, they outline the nature of information exchanges that will be carried out with partner organisations. This is echoed by one of his employees **EdEmp2**, who stated that they (SME01) "*rely heavily on information from other organisations and government agencies"* which has proved to be vital to their operations. **KiMgr2** observed that they have a list of bookshops that they partner with to exchange information regarding the best deals for their books. These SMEs attested to the fact that interaction with other organisations enabled them share vital information and meant that they were always up to date with changes in the market.

By assimilation, the SMEs made a deliberate effort to try and internalise the acquired information, as can be deduced from the following statements.

EdEmp1 *"we make [process] the information to make sense to us."*

NaEmp4 *"We ask ourselves how it [information] can be beneficial to us in the organisation."*

By transforming the acquired information the SMEs were able to make it relevant to their context, as can be observed from the following excerpts:

EdMgr1 *"I encourage those who know something to teach others."*

KiMgr2 *"We have brochures with book descriptions which we give workers."*

NaMgr2 *"We have daily updates meeting every morning. During this time we share experiences and pass important information."*

By exploiting the transformed information, many respondents observed that they benefited a great deal from the information that they obtained from outside the organisation.

The preceding findings indicate that these three SMEs made deliberate efforts to acquire relevant external information, assimilated it in their enterprises, made it relevant (transformed it) and eventually exploited it to their advantage. In this regard they are classified as exhibiting high levels of AC. The demographic information indicates that the management of all three of these SMEs are undergraduates with university degrees in various fields. This could help explain why they were keen on information exploitation; that is, their educational background means they would easily understand the relevance and value of such information.

SMEs with Weak AC:

As mentioned previously, these SMEs did not make any deliberate efforts to identify, acquire, assimilate, transform or exploit relevant external information. For example **EdMgr2** stated that they did not *"require any external information"* to carry out their work. As a result they did not *"deliberately source for external information"* **EdEmp4**.

While there were meetings, sharing of information and communication from the management to the employees, this was more often than not done in an ad hoc manner. Comments by the following respondents aptly capture this general phenomenon.

EdMgr2 *"I meet with them only when there is something urgent*."

NaEmp1 *"It takes long before we know what is happening in another section [department]*."

With these findings we can rightly conclude that no deliberate efforts were made by this group of SMEs to identify external information, to acquire it, assimilate it, transform it or make use of it. As such, the level of AC for these SMEs can be said to be minimal.

A discussion on the findings of the first three research sub-questions is presented in the subsections that follow. The findings are presented using the two clusters of SMEs that have been presented in the preceding discussion.

5.5.1 First Research Sub-Question

The purpose of this research sub-question was to investigate the existence of Absorptive Capacity (AC) and its role in the organisational performance of Kenyan SMEs. The sub-question seeks to establish whether or not AC is a contributor to SME performance in Kenya.

This research sub-question was formulated as follows:

> *How does Absorptive Capacity contribute to the organisational performance of SMEs in Kenya?*

In order to address this research sub-question, questionnaires, interviews, document analysis and observations were employed as the data collection instruments (see Table 5-7).

A detailed discussion on the findings relating to this research sub-question is now presented beginning with the results obtained from the questionnaires.

5.5.1.1 Questionnaire Findings

The questionnaire (see Appendix C) contained several sections designed to obtain information on the Absorptive Capacity (AC) and the IT adoption strategy employed by the SMEs (see Table 5-1). In this section, findings from the questionnaire that address the first research sub-question are presented. The questionnaire focused on the four elements of AC, namely, acquisition, assimilation, transformation and exploitation (Zahra & George, 2002; Table 5-1) as was adopted in this study (see Chapter 2).

Therefore, in addressing this research sub-question the study looked at how each of these elements individually and collectively contributed to the organisational performance of the SMEs. Table 5-9 shows the questions asked relating to the first research sub-question.

Table 5-9: Questionnaire questions relating to sub-question 1

Question No.	Question
3	How do the issues raised in questions 1 (interaction) and 2 (trust, respect, friendship and reciprocity) help in improving the performance of your business?
8	How do the issues raised in questions 4 (common language), 5 (complementarity), 6 (similarity) and 7 (compatibility) help in improving the performance of your business?
15	How do the issues raised in questions 9 (communication), 10 (meetings), 11 (documents), 12 (transmission), 13 (time) and 14 (flows) help in improving the performance of your business?
18	How do the issues raised in questions 16 (responsibility) and 17 (application) help in improving the performance of your business?

Following are summaries of findings from the SMEs regarding the above questions.

Table 5-10: Summary of questionnaire findings on sub-question 1 for SMEs with strong AC

Question No.	Summary of findings from SMEs with strong AC
3. How do the issues raised in questions 1 (interaction) and 2 (trust, respect, friendship and reciprocity) help in improving the performance of your business?	With regard to the element of acquisition, the SMEs observed that through this they were able to obtain and share valuable information. **EdMgr1,** for instance, noted that *"we are able to know changes in the market"*. **NaEmp3** further compounded this by stating "*we [the business] can't survive without sharing information"*. It was noted too by the SMEs that this element (acquisition) of AC was instrumental in improving their ability to connect with potential partners or players in the market. For instance, **NaMgr2** states that, "*the elements [interaction, trust, respect, friendship and reciprocity] are important in knowing other firms in the industry"* a fact supported by **KiMgr2** who states "*it helps us identify other suppliers and customers"*.

Question No.	Summary of findings from SMEs with strong AC
8. How do the issues raised in questions 4 (common language), 5 (complementary), 6 (similarity) and 7 (compatibility) help in improving the performance of your business?	It was clearly evident from the SMEs responses that common language, complementarity, their similarity and their compatibility with other SMEs played a critical role in shaping the relevancy of information that is shared between the SMEs. **KiMgr2** posited that *"we are in the same industry so what is useful to our friends [other bookshops] is useful to us".* Further, these factors were enumerated as playing a pivotal role in facilitating collaboration among the SMEs, as stated by these two employees: **NaEmp3** "*These elements allow us to engage with other software development firms in developing products".* **EdEmp1** "*With these [the elements] we were able to identify and partner with two other firms*."
15. How do the issues raised in questions 9 (communication), 10 (meetings), 11 (documents), 12 (transmission), 13 (time) and 14 (flows) help in improving performance of your business?	Regarding the element of transformation of knowledge the overarching theme noted was that the knowledge transformation period was short. In other words, it took these SMEs less time to internalise the external knowledge. **KiEmp3** observed "*these make us take less time to make it [acquired knowledge] important to us"*. **NaMgr2** reports too that "*it takes us minimal time in making sense of what we get from others"*.
18. How do the issues raised in questions 16 (responsibility) and 17 (application) help in improving performance of your business?	The SMEs pointed out that by exploiting the transformed knowledge they were able to make more informed decisions. **NaMgr2** stated that, "*it [exploitation of knowledge] enables us make right decisions"*. **EdMgr1** observed, "*we are able to know the right path for us"*. The element of exploitation was found too to be instrumental in helping the SMEs strategically position themselves better, for example **KiEmp3** reported, *"by identifying location for the bookshop and kind of customers for the books"* and **EdMgr1** also indicated that the exploitation of knowledge helped them identify the right product for their customers. The SMEs noted further that the element of exploitation enabled them to be more responsive to market dynamics. **NaEmp3** for example reported, "*we easily identify the clients' requirements"*.

These findings indicate that this group of SMEs had experienced considerable benefits as a result of their strong AC, which they could tie to their organisational performance. These can be summarised as follows:

Through acquisition the SMEs are able to

- obtain and share valuable information, and
- connect with potential partners and players in the market.

Through assimilation the SMEs are able to

- make the shared/exchanged information relevant to them, and
- create collaboration with other organisations.

Through transformation the SMEs are able to

- use minimal time in transforming or internalising the acquired external information.

Through exploitation the SMEs are able to

- make more informed decisions
- strategically position themselves, and
- be responsive to market dynamics.

In the following table, extracts from the questionnaire responses from SMEs with low AC are presented. As mentioned previously, these were SMEs that had made no deliberate effort to acquire, assimilate, transform or exploit relevant external information. It was also observed that these SMEs had no structures designed to facilitate the same. SMEs that fell into this category were EdSME02 from Eldoret County, KiSME01 from Kisumu County, NaSME01 from Nairobi County, and MoSME01 and MoSME01 both from Mombasa County.

Table 5-11: Summary questionnaire findings on sub-question 1 for SMEs with weak AC

Question no.	Summary of findings from SMEs with weak AC
3. How do the issues raised in questions 1 (interaction) and 2 (trust, respect, friendship and reciprocity) help in improving the performance of your business?	This group of SMEs had made very few efforts to acquire external knowledge. This could partly be due to the lack of a well-defined structure to facilitate the identification and acquisition of relevant knowledge. A statement by **EdMgr2** vividly illustrates this; the manager observed that they *"don't understand how to bring in outside information"*. **KiEmp2** further compounded this by stating that elements in this question do not help their firm in anyway.
8. How do the issues raised in questions 4 (common language), 5 (complementary), 6 (similarity) and 7 (compatibility) help in improving the performance of your business?	Apart from SME **EdSME02**, the rest of the SMEs in this category did not have processes in place which could enable them to interpret and understand external information. As a result, the elements raised in this question were in limited supply.
15. How do the issues raised in questions 9 (communication), 10 (meetings), 11 (documents), 12 (transmission), 13 (time) and 14 (flows) help in improving the performance of your business?	These SMEs considered knowledge transformation difficult. There were no regular meetings and no documents that were used to share relevant information in the SMEs. **KiEmp2**, observed: "*We don't have regular meetings".* This could help to explain why more than half of the SMEs with weak AC observed that the expertise possessed by the employees had dwindled with time as they focused primarily on their tasks and had limited or no interactions with other employees to enrich their expertise.

Question no.	Summary of findings from SMEs with weak AC
18. How do the issues raised in questions 16 (responsibility) and 17 (application) help in improving the performance of your business?	The elements in this question are useful in determining whether the SMEs exploited information to their advantage. Again, as a result of minimal sharing of information and also a lack of external information acquisition, these SMEs rarely took advantage of the external information resource. It was also evident from their responses that this cluster of SMEs did not know how they could exploit the information. **MoEmp2**, for example stated: "*We don't know how to do this".*

From the questionnaire findings presented above a clear pattern emerges, indicating the existence of a correlation between the SMEs' AC and their organisational performance. The SMEs that had greater AC indicated that AC had made a direct contribution to their organisational performance. Conversely, is it evident that those SMEs that exhibited weak AC had little to show regarding the relationship between AC and their organisational performance. These findings are in agreement with those of Wiklund and Shepherd (2003) and the more recent findings of Tsai and Wu (2011), Volberda et al. (2010) and Bi et al. (2009), all whom have provided empirical evidence suggesting that firms with greater AC have better organisational performance as a result of exploiting various elements of AC.

The following subsection presents the findings extracted from the interview transcripts that address the first research sub-question.

5.5.1.2 Interview Findings

The semi-structured individual interviews conducted in this study took about thirty minutes each. The responses from the respondents were recorded (with permission) using a mini clip portable digital voice recorder. Furthermore, field notes were made during the interview sessions. These were also transcribed and used in data analysis.

To ensure that the transcription process was thorough and meticulous the researcher made use of orthographic transcription to transcribe the interview recordings. This form of transcription focuses on transcribing audio to recorded data (Braun & Clarke, 2013).

Furthermore, a transcription notation system was used to ensure clarity and consistency in the translation (see Table 5-4).

Table 5-12 presents the questions from the interview guide that were used to address the first research sub-question.

Table 5-12: Interview questions relating to sub-question 1

Question No.	Question
1	How can you tell that particular information that the organisation receives from outside is important? - *Prompt: From where do you usually get such information?*
2	Can you tell me how the organisation's ability to identify and make use of external information has helped your business? - *Prompt: Could you share specific examples*
3	What do you think would go wrong in the organisation if it never identifies and makes use of external information?
4	Do you think your organisation is always keen to identify and make use of relevant external information to improve its business? - *Prompt: If yes, what can show that the organisation is indeed keen on identifying and utilising relevant external information?*

As with the presentation and analysis of the questionnaire findings, the interview findings and analysis will be broken down into two parts: the first part will look at the SMEs that exhibited strong AC and the second those with weak AC.

The following presentation now focuses on those SMEs with strong AC.

In responding to the first interview question, this cluster of SMEs (EdSME01, KiSME02 and NaSME02) had sensible knowledge about deciphering the relevancy of external knowledge. Most interviewees in this group of SMEs were clear about the kind of information that their organisations would find most useful and that that would be less useful. This is captured by the following responses:

EdMgr1 *"it must come from a similar industry. Like most information from government financial institutions directly affects us like those from the Central Bank of Kenya*."

NaEmp3 "*If that information can meet our software requirements need that we have it certainly will be of help to us...We work closely with other firms to share experiences*."

In terms of the second interview question on how the SMEs' ability to identify and make use of external information has helped their business, the following were identified as some of the benefits that they could attribute to this organisational ability:

- It has enabled them to produce superior products (e.g. **NaEmp4**, "*With the right information about new technological trends we are able to use such information to ensure that our software products are the best in the market."*).
- They are able to know their continued relevance in the market (e.g. **EdMgr1**, "*It is the only way we can know whether we are still relevant in the financial industry or not."*).
- It enables them to make better decisions (e.g. **KiMgr2**, "*It is very important for decisions made to support our business and with such ability we always make the correct decisions."*).
- They are able to position themselves strategically (e.g. **NaMgr2**, "*We are able to know our competitors and other matters that affect our business. We then take all these into account when coming up with our strategies."*).
- They are able to respond to market dynamics (e.g. **EdEmp1**, "*When there are changes in financial rates … we are able to get this information and adjust our lending rates to keep our customers and also attract others."*).

With regard to the third interview question on what the interviewees thought would go wrong if their SMEs were never to identify or make use of external information. The respondents were all in agreement that their business would face numerous challenges and would fair badly in the market. The words of **EdMgr1** aptly capture this common view. The manager said, "… *err how can we survive? We are not an island and no business is (laugh). In this present day and age we need to be updated on what is happening on the outside world and fit [blend] with it. There is no other way out*." They observed that it would be a challenge to run their businesses normally without engaging with the outside world.

In response to the fourth interview question, which asked whether the interviewees thought that their SME was always keen to identify and make use of external knowledge, the respondents in this group of SMEs answered in the affirmative, with most citing the existence of the following as evidence to support their claim: communications with other SMEs or institutions, regular meetings where information is disseminated, previous decisions that had been made that exploited external information, and policies within the SMEs that allow for the acquisition and use of external information.

The interview findings for SMEs with weak AC are now presented.

With regard to the first interview question the respondents from this group of SMEs (EdSME02, KiSME01, NaSME01, MoSME01 and MoSME02) gave varied responses. It was discernible that most of them had a sense of what kind of information would be considered relevant for their organisation. The following responses attest to this.

MoMgr1, "*Yah, we can tell if information is good or bad for us, 'err' if it is one that relates to our business it surely will be important to us*."

NaEmp1, "*If it is associated with matters of money certainly it will be relevant to us, like those [information] from Nairobi Stock Exchange or other banks*."

Further prompting by the researcher on where their SMEs usually get the external information enabled the conclusion to be made that the knowledge of what information is or is not relevant for the SME was an individual perception. This knowledge by the interviewees on what kind of information would be considered relevant for their organisation had very little to do with the fact that such infiltration of external information was an event taking place within the SMEs. This was revealed by the majority of respondents stating that their SMEs seldom acquired external information for use within the SMEs.

This finding suggests that the individual AC is not synonymous with the organisations' AC, that is, whereas an individual may have strong AC, this does not directly translate to organisational AC. This finding endorses those of Schildt et al. (2012), Felin and

Hesterly (2007), Malhotra et al. (2005) and Volberda et al. (2010), who maintain in their studies that the sum of individual AC does not always translate into organisational AC.

As to the second interview question on how the SMEs' ability to identify and make use of external information has helped their business, the majority of the respondents could not connect to this as it was evidently a factor missing in their SMEs. An assertion by one of the employees **MoEmp3** sums up the general notion relating to this, "*It is hard to tell, maybe the owner can know, we don't do this thing [identifying and making use of external information] but I think it can be good*".

With regard to the third interview question on what the respondents thought would go wrong in their SME if it were never to identify and make use of external information, the majority reported that there is the likelihood that the reason for the poor performance of their SMEs is tied to them operating with disregard for the value of external information. As **NaEmp2** comments, "*We have not been doing so well like other hotels around here … maybe it is because we don't borrow ideas from other places, I think if we did this we could find better ways of attracting more clients*". As observed by **NaEmp2** the respondents in this cluster of SMEs remarked that although there was no practice of deliberate identification and exploitation of relevant external information, their SMEs could benefit from such endeavours.

In the fourth interview question, which was intended to find out whether the interviewees thought their SME was always keen to identify and make use or relevant external information, three-quarters of the respondents admitted that their SME had not put deliberate structures in place to acquire and exploit relevant external information, as could be deduced from the following responses.

EdEmp4, "*We do not always do this, perhaps in future … but at the moment we don't. If we were, we should have information about the peak season and low season but we don't.*"

NaEmp1, "*It does not usually happen.*"

These interview findings are in agreement with those of the questionnaire regarding the existence of a link between SMEs' AC and their organisational performance. These findings further provide evidence of positive returns that SMEs experience as a result of strong AC, further reinforcing the similar findings deduced from the questionnaires (see section 5.5.1.1). Table 5-13 presents a summary of these interview findings.

Table 5-13: Summary of interview findings

Interview question	Summary of findings	
	SMEs with strong AC	**SMEs with weak AC**
1. How can you tell that particular information the organisation receives from outside is important?	These SMEs had a good idea about what is and what is not relevant information for their SMEs.	Individual staff members of the SMEs had a sense of what is and what is not relevant information. However, this did not translate to a similar ability for the SMEs.
2. Can you tell me how the organisation's ability to identify and make use of external information has helped your business?	Are able to: • produce superior products • determine their relevance in the market • make better decisions • strategically position themselves • respond to market dynamics.	The SMEs' ability to identify and make use of external information is evidently a missing factor.
3. What do you think would go wrong in the organisation if it never identifies and makes use of external information?	Are well aware that it cannot be business as usual without interacting with external information.	Most associated their organisation's poor performance to its eminent lack of structures and lack of efforts to acquire and exploit external information.
4. Do you think your organisation is always keen to identify and make use of relevant external information to improve its business?	Deliberate efforts and structures have been established to identify and make use of relevant external information.	The respondents observed that their organisations have not deliberately established structures or made efforts to acquire and exploit external information.

The interviews findings are consistent with the study evidence obtained from the questionnaires that SMEs with strong AC are better positioned to display superior performance than their counterparts with weak AC. This can directly be inferred from the summary of responses on the questionnaires from research question one in Table 5-11.

In the next subsection, a presentation is made on the findings from various documents which were made available by the SMEs. These were subsequently analysed in relation to the first research sub-question.

5.5.1.3 Document Analysis Findings

As indicated previously (see section 5.2.4), the minutes of meetings, policy documents, letters and employee profiles were evaluated to provide further insights into study issues.

From SMEs EdSME01, EdSME02, KiSME02, NaSME02 and MoSME01, there was evident of consistent meetings held either fortnightly or monthly. This was deduced from the existence of the fortnightly or monthly minutes. This evidence further confirmed the existence of strong AC for the SMEs EdSME01, KiSME02, and NaSME02. Additionally, from the minutes of the meetings of these three SMEs a number of actions were noted where some employees were sent to other SMEs on certain assignments. This was a clear indication that the SMEs actually did engage with other SMEs as was indicated in the findings from the questionnaires and interviews. Cohen and Levinthal (1990) observe that for strong AC to exist there has to be a structure of communication between the organisation and the external environment, as well as within its units, in order to create an avenue for external information to infiltrate into the firm and within the firm. The presence of minutes indicating consistent meetings taking place within the SMEs and engagement with other SMEs is a clear indication that the above group of SMEs had clear structures of communication within the organisation and with the outside.

Policy documents spelling out things like the nature of SMEs' engagements with other partners and its organisational structure, among others, also helped to further affirm whether or not the SMEs had deliberate plans to identify, acquire relevant knowledge and exploit the same. As for the letters, the researcher was keen on noting the existence of exchanges of letters between the SMEs and other firms as one of the indicators of the SMEs' AC. The employees' profiles were also used to verify the participants' demographics which were obtained from the questionnaires.

In order to obtain additional information for identifying inaccuracies or distortions in actual events, observation was carried out. The findings from this observation relevant to the first research sub-question are now presented.

5.5.1.4 Observation Findings

Observation was carried out in a structured manner using set guidelines and a well-defined process (see Figure 5-1). The researcher noted the prevailing organisational atmosphere by paying attention to the interpersonal relationships between the employees as well as with the management. In doing so it was possible to observe how members within the SMEs communicated and the language they used in communication. It was observed that the AC element of a common language, which is critical in the sharing of information, was very evident in SMEs EdSME01, KiSME02, and NaSME02. It was also observed that employees in these SMEs interacted freely with each other and even with the management. This group of SMEs appeared more organised and the level of efficiency and effectiveness in their operations was quite evident. This observational finding further reinforces the previous assertion that AC is a contributor to organisational performance in SMEs. For the other SMEs with low levels of AC, intermittent communications were observed and at times a number of employees could be heard talking in their different vernacular languages. This indicated that communication in a common language was not the tradition in these SMEs.

The next subsection provides a summary and an interpretation of the findings for the first research sub-question.

5.5.1.5 Interpretation for Sub-Research Question 1

First Research Sub-Question:

> *How does Absorptive Capacity contribute to the organisational performance of SMEs in Kenya?*

The empirical evidence presented in this study provides a strong endorsement of AC as playing a key role in helping SMEs in Kenya scale up their organisational performance.

By analysing the findings related to this research sub-question, it was found that AC contributes to the organisational performance of Kenyan SMEs in the following ways:

- It facilitates knowledge transfer and interaction between the SMEs.
- They are able to develop more superior products/services.
- They are able to determine their relevance in the marketplace.
- It enables them to use their scarce internal skilled manpower and knowledge resources efficiently and effectively.
- They are able to make more informed decisions.
- They are able to position themselves better strategically.
- It enables them to be more responsive to market dynamics.

These findings provide depth to the arguments posited by a number of researchers such as Schildt et al. (2012), Felin and Hesterly (2007), Malhotra et al. (2005) and Volberda et al. (2010) that AC plays a pivotal role in contributing to organisational performance. Although these studies focused on large firms, the consistency of the results with those of this study implies that AC is not only the preserve of large firms. Indeed, as revealed in this study, SMEs equally stand to benefit from AC.

The study further showed that a lack of clear structures creating avenues of engagement between the SMEs and the external environments and the absence of deliberate efforts to exploit external information make the SMEs blind to the many benefits that could be exploited by absorbing external information.

From these findings, the researcher submits that if SMEs in Kenya are to improve their chances of survival, it is important that they put structures in place to improve their AC. This finding means that AC, if well exploited, has the potential to offer solutions to some of the perennial organisational performance challenges that SMEs in Kenya face.

The next subsection discusses the findings relating to the second research sub-question.

5.5.2 Second Research Sub-Question

The object of this research sub-question is to investigate the IT adoption strategies used by SMEs in Kenya and whether these are effective.

This research sub-question was formulated as follows:

How effective are the IT adoption strategies employed by SMEs in Kenya?

In order to address this research sub-question, the following data collection methods were used: questionnaires, interviews, observation and still photos (see Table 5-7). In addressing this research sub-question, the previous approach is adopted in which the findings from SMEs with strong AC are compared to those with weak AC.

An in-depth discussion of the findings relating to this second research sub-question now follows beginning with the results obtained from the questionnaires.

5.5.2.1 Questionnaire Findings

As was stated previously (see section 5.3.1.1) the questionnaire was completed by 24 participants from all eight SMEs recruited for the study. The questions relating to this sub-question were designed to capture the three stages of IT adoption as identified for this study (see section 3.4): decision stage, implementation stage and evaluation stage.

Table 5-14 shows the questions relating to the second research sub-question.

Table 5-14: Questionnaire questions relating to sub-question 2

Question no.	Question
	Decision stage
19	How did the organisation determine whether or not it needed IT?
20	Was the organisation aware of other available IT solutions?
21	Why did the organisation decide to acquire/purchase this particular solution(s)?
22	Was the organisation prepared to use the IT solution (like availability of skilled staff, availability of equipment necessary to run the IT solution)?
23	Was advice/opinion sought before the IT solution(s) was acquired/purchased? If yes from where was the advice/opinion sought from?

Question no.	Question
	Implementation stage
24	Was training conducted before you started using the IT solution(s)? Who conducted the training and how was it done?
25	How was the IT solution(s) deployed/setup?
	Evaluation stage
26	Is an evaluation/assessment done to determine how the IT solution(s) is impacting the business? If yes how is this evaluation/assessment done?
27	How does the organisation ensure that the IT solution(s) remains relevant as the business needs changes?
28	Do you consider the IT adoption as a success? Why?

With regard to the first question (How did the organisation determine whether or not it needed IT?), for the SMEs with strong AC (EdSME01, KiSME02 and NaSME02) it was possible to establish that two of them, EdSME01 and NaSME02, had a fairly well-formulated decision stage for their IT solution adoption. These two SMEs did in-house analysis to help them establish their IT need. For example, **EdEmp2** stated, "*We looked at our processes to determine if they could be supported by technology*". However, this was not the case with SME **KiSME02,** whose manager stated that they had just acquired their software (point-of-sale application and an accounting solution) from a business friend and had decided to use it. This is in sharp contrast to the category of SMEs that possessed weak AC. It was discernible that they did not articulate their SMEs' need for the IT solution. This is captured by the remark from **KiMgr1,** who stated that, "*Everybody uses it"*, a view shared by **MoEmp3**, "*Other business[es] also use it"*.

On the question of whether the organisation was aware of other available IT solutions, all three SMEs with strong AC indicated that they were aware of other available IT solutions they could have used. These findings could easily be tied to the fact that there were exchanges of information between these SMEs and other entities, making them more knowledgeable on the kind of relevant technologies available to them in the market. In the category of SMEs with weak AC, only two of the five indicated that they were aware of other available IT solutions they could have used before they acquired their technology.

The third question related to the decision stage (Why did the organisation decide to acquire/purchase this particular solution(s)?). For the SMEs with strong AC the following reasons were stated by all three SMEs:

- To help improve the efficiency and effectiveness of their business process (e.g. **EdMgr1**, "*To shorten the time to process customer loan requests"*).
- To boost organisation's image (e.g. **KiEmp4**, "*To be like other business who use computers"*).
- To conform to governmental regulations, this is in regard to the Kenyan government requiring all businesses to use an ETR (e.g. **KiEmp3**, "*Government require us to use ETR"*).

As for the SMEs with weak AC the following reasons were stated.

- To boost the image of the SME. This was cited by four out of the five SMEs in this category (e.g. **KiMgr1**, "*Everybody uses it").*
- To automate the current processes (e.g. **MoEmp4**, "*To use computers to do our everyday work").*
- To conform to governmental regulations (e.g. **NaEmp2**, "*It is government policy for ETR"*).

Most of the SMEs with weak AC adopted the technology merely to automate the existing processes and because it appeared fashionable. The findings further reveal that the SMEs with weak AC did not invest in IT for strategic reasons.

The fourth question relating to the decision phase of IT adoption was on the organisation's preparedness to adopt technology. For the three SMEs that exhibited strong AC, some level of preparedness was obvious prior to the acquisition of the IT solution. **NaMgr2** for example states, "*We did initial training, bought UPS [uninterruptable power supply], and air conditioning"*. Further, as part of preparedness SMEs EdSME01 and KiSME02 hired additional workers who were well versed in the new system. As for the other category of SMEs with weak AC, with the exception of

SME NaSME01, which had hired additional staff, the remaining four did not make any effort to ready themselves for the new technology.

The last question on the decision stage was on whether any opinion had been sought before the IT solution was purchased. The SMEs that exhibited strong AC sought external opinions with regard to the viability of the technology they were intending to adopt. However, only SME EdSME01 sought advice from professional consultants. For the other two SMEs this advice was obtained from peers (other SMEs who used a similar solution). This was also the case for all the five SMEs with weak AC, who also only sought an opinion from other SMEs who had adopted similar or some form of technology.

Two questions were asked regarding how the SME had implemented the IT solution. The first was on whether some form of training had been conducted. In response, all the three SMEs with strong AC noted that they had had some form of training. They indicated that this training was done by qualified consultants. This would be the point of departure as far as SMEs with weak AC were concerned. With just one exception, they all stated that they had relied on training from employees within the SME who had some technological knowhow.

The last question on the implementation phase was on how the IT solution was deployed/setup. It would appear that only SME EdSME01, which had sought advice from a professional consultant, was more tactical in its set-up approach, as it carried out a pilot approach by trying the system in one unit before rolling it out to the entire organisation. In all the other seven cases, the deployment approach had been more drastic with no consideration of the possible ramifications. The technology was setup in all the units that were to use it all at once; as **NaEmp3** states in this regard: "*All sections started using it [the new technology] the same day*."

With regard to the evaluation stage, three questions were asked. The first one was whether evaluation was done to determine how the adopted IT solution was impacting on the business. From the responses of SMEs EdSME01, KiSME02 and NaSME02, it was clear that they had all conducted some follow-ups on the effectiveness of the

adopted IT solution. This was done by checking on the improvements in the processes that were automated. As **EdEmp2** notes, "*We looked to check if the loan process was still long as before*". This and the improvements in the SMEs profits were the only two ways adopted by these SMEs in evaluating the performance of their adopted IT solution. With regard to the SMEs with weak AC, only one SME, NaSME01, had made any evaluation by looking at whether there were changes in its processes. The other four SMEs did not carry out any form of evaluation. As would appear from their responses, they simply had no idea how to do this or what its relevance was, as **EdEmp4** puts it, "*We don't do the evaluation, we don't know how*".

The second question on the evaluation phase related to the way the organisation ensured that its IT solution remained relevant as the business needs change. All three SMEs with strong AC observed that they would consider modifying or acquiring new technology if the current one no longer addressed their business needs. This view was shared by the other set of SMEs with weak AC.

Finally, the respondents were asked if they considered their IT adoption a success. All three SMEs with strong AC were happy and considered their IT adoption a success. The statement by **EdEmp1** captures these sentiments, "*Yes, the technology is working well, our processes have improved*". The same could not be said of the rest of the SMEs with weak AC, as most of them observed that there had been no improvements on the manner in which the business is run, as **EdEmp4** observed, "*I don't see anything different"*.

It was found that, in general, all the SMEs could in one way or another do with some improvements in their IT adoption strategies. The findings reveal that the SMEs that exhibited strong AC had employed the use of superior IT adoption strategies than had their counterparts with weak AC. Those with weak AC appeared more heavily wanting in their choice of IT adoption strategies. In fact, from the study findings it is impossible to make a definitive conclusion that SMEs with weak AC viewed IT as an opportunity. Going with these arguments we can conclude, based on these findings, that low levels of AC are an inhibitor to effective IT adoption. In their study of 250 firms, Haro-Dominguez et al. (2007) came to a similar conclusion; namely, that the degree of AC

within firms positively influences their IT adoption. The study findings also echo those of other researchers such as Ashrafi and Murtaza (2008), Mpofu and Watkins-Mathys (2011), Apulu et al. (2011), and Marthan and Tan (2010)among others, who all reached a similar conclusion; that is, a significant number of IT adoption processes in SMEs are flawed and a number of SMEs struggle with their IT adoption process. Although the need for IT by SMEs cannot be over emphasised, it is a widely accepted view that many are challenged in their IT adoption process.

The findings from interviews are discussed in the next subsection.

5.5.2.2 Interview Findings

Two interview questions were used to help address this research sub-question. In the first question the interviewee was asked to elaborate on the process that was followed in acquiring the IT solution. From the interview extracts, it is clear that some elements of AC were exploited by the SMEs that exhibited strong AC. This group of SMEs exploited elements such as the ability to obtain relevant external knowledge (e.g. **EdEmp2**, "*we got some information on how to use the system from the Kenya Women Finance Trust who used the same system"*), communication (e.g. **NaEmp4**, "*after the training, the ones [other employees] who understood the system better helped the rest"*). Further, their adoption process appeared more systematic and planned (e.g. **EdMgr1**, *"we first looked at what technologies we could use as a small financial firm…After looking at our practices we chose this [QuickBooks] accounting software. We then bought computers as per specifications we were given and even hired additional workers who understood the system well. The consultants provided a two weeks training and then we continued with in-house training from those of us who understood the system well*.").

With regard to the SMEs with weak AC, their IT adoption strategy appeared to be more situational than systematic, as a clear coherent way for undertaking the process was lacking. While there was no initial planning, some decisions were made in an ad hoc manner (e.g. **NaEmp2** *"the management hired two workers on contract since most of us we were having problems using this system"*). Further, it appeared that their weak AC disadvantaged them in the IT adoption process. For example, the lack of inflow of

relevant external information rendered them less knowledgeable on what other technological solutions were available to them.

The second interview question asked whether the interviewees were satisfied with the adopted IT. In the three SMEs with strong AC, seven out of the nine respondents indicated that they were happy with the adopted IT. In the SMEs with weak AC, of the 14 interviewees only two pointed out that they were satisfied with the adopted IT solution. It can be seen that the level of satisfaction with the adopted technology was very low for the cluster of SMEs with weak AC. When prompted about why they were not satisfied, the following representative comments summarise their views.

- lack of familiarity with contemporary IT adoption strategies
- lack of sufficient time to carry out IT adoption planning
- previous failed attempts to invest in IT
- few success stories to refer to
- constant changes in technology and lack of resources to accommodate the changes
- challenges in evaluating the benefits from IT investments.

Finally, the interviewees were asked if they wished to make any further observations concerning the issues raised during the interview. Only 15 out of the 23 participants responded to this question. Their representative comments relating to this research sub-question are summarised as follows:

- There is a lack of understanding of what an ideal IT adoption strategy is.
- Knowledge of why and how they should evaluate their IT adoption process is not available.
- Challenges in determining the current and the future IT needs of the SMEs.

From the interview findings presented here it can be summarised that AC can be exploited to help improve IT adoption strategy. For example, the SMEs with strong AC used external information to enrich their IT adoption process. Furthermore, this group of SMEs had a more systematic and planned IT adoption process. This may be contrasted

with the SMEs with low levels of AC, who did not have a clear coherent way of undertaking the process and many decisions relating to the adoption were made in an ad hoc manner. However, in all the cases, the IT adoption strategy employed was wanting. This could be due to the lack of a clear guide that SMEs could use to help them in their IT adoption process. Accordingly, some attested to the fact that they did not have an understanding of what constitutes an ideal IT adoption strategy. A number of studies like Apulu et al. (2011), Asasen et al. (2003) and Dhillon et al. (2009) have found that SMEs do not have any guide that is tailored to their unique setting. In the absence of such a guide many SMEs resort to informal and orthodox ways in their IT adoption process (Apulu et al., 2011).

The low levels of satisfaction reported by the respondents with weak AC regarding the adopted IT can be linked to the casual manner in which the adoption process was undertaken. As with any other investment, before investing in any technology, its relevance for the business and the business's level of preparedness to adopt the technology should be carefully considered.

In the next subsection findings relating to the observation used in this research sub-question are presented.

5.5.2.3 Observation Findings

As was indicated previously, a more structured form of observation was adopted (see Figure 5-1) and Table 5-3 shows a sample of how anecdotal records were captured in this study.

The researcher noted the usage of the adopted IT solution within the SMEs. It was observed that employees in SMEs with strong AC appeared to be well versed in the usage of the adopted IT. However, those in SMEs with weak AC at times experienced challenges in using the adopted technology. This was discernible from the constant hiccups in technology use, prompting the users to occasionally suspend their duties and seek help from fellow employees.

Heavy paperwork was also noted in a number of SMEs with weak AC, giving an indication of the fact that the adopted technology was not being fully exploited.

Still photos played an instrumental role in helping address this research sub-question.

5.5.2.4 Still Photo Findings

Still photos were used as a baseline for further discussions during the interview sessions when addressing the second research sub-question. For example, the following photo of SME MoSME01 shows one of the offices with lots of documents on the tables as well as on the shelves. It should be noted that there were computers that could have been used to store some of the files/documents electronically. The researcher probed the issue of why the technology was not being fully exploited by showing the photo to the interviewee.

Photo 5-1: A Section of SME MoSME01

Furthermore, the visual evidence from the photos was instrumental in supporting findings that were obtained from the other research instruments.

The summary and interpretation of these findings for the second research sub-question are now presented in the subsection that follows.

5.5.2.5 Interpretation for Sub-Research Question 2

Second research sub-question:

How effective are the IT adoption strategies employed by SMEs in Kenya?

The majority of the SMEs that participated in the study had employed inefficient and ineffective IT adoption strategies. This same scenario was revealed in the literature on

IT adoption in SMEs (see Chapter 3 Table 3-3). From the table it can be seen that a number of empirical findings have revealed that many SMEs grapple with the IT adoption process.

The following challenges were noted as having contributed to the largely ineffective IT adoption strategies employed by the SMEs in Kenya:

- difficulty in determining the present and the future needs of the SMEs
- lack of sufficient time to carry out IT adoption planning
- previous unsatisfactory performance of IT investments by the SMEs
- few success stories in IT investment to refer to
- frequent changes in technologies and lack of adequate resources to accommodate such changes
- no stock taking on the performance of the implemented IT solution.

The challenges exposed by these findings provide an understanding on the context within which the ITASIM is to be established and therefore were taken into consideration in the development of the proposed model.

This finding means that there is need to offer a solution to the SMEs in Kenya to help them improve their IT adoption process which currently is characterised by several challenges.

The findings of the third research sub-question are now discussed in the following subsection.

5.5.3 Third Research Sub-Question

The purpose of this research sub-question is to investigate whether there is a correlation between SMEs' AC and the way in which they adopt IT and, if so, in what manner does the AC sway the choice of the IT adoption strategy? Although there were both a questionnaire and an interview question focusing directly on this sub-research question, the corroboration of various findings was used to determine if a correlation exists between an SME's AC and its choice of IT adoption strategy and if there is a connection, what is the nature of the influence.

This research sub-question was formulated as follows:

How does Absorptive Capacity influence the choice of IT adoption strategy?

In the following subsections a presentation is made on the findings from specific questionnaire and interview questions related to this sub-research question. Since these two sets of questions relate to how the SMEs' ability to identify and make use of external information affected their IT adoption strategy, it become logical to consider the responses from those SMEs that had exhibited strong AC due to the existence of such ability within them. Furthermore, the two questions were scantly addressed by the respondents from the five SMEs with weak AC. This could be attributed to the fact that the elements of identifying and exploiting external information were hardly ever present as was shown previously (see section 5.5).

The subsections are collectively concluded by providing the findings and analysis from the corroboration of findings from the first and the second research sub-questions.

5.5.3.1 Questionnaire Findings

This question in the questionnaire sought to understand how the SMEs' ability to identify and make use of external information affected the manner in which they carried out their IT adoption process. From the findings of the three SMEs with strong AC, it was apparent that their knowledge of the availability of relevant IT solutions stemmed from the fact that they did tapped into information that was external to the organisation (e.g. NaMgr1, "*We were able to know the best [software] development tools for us"*). This also enabled them to adopt fairly advanced solutions (e.g. EdEmp2, '*We were able to get the best we could afford"*).

They further noted that this ability enabled them to compare the way their solution was faring compared to that being used by other business. This, they observed, enabled them to stay relevant in the market.

The next subsection presents the findings from the interview question relating to the third research sub-question.

5.5.3.2 Interview Findings

This interview question mirrored that of the questionnaire and the intention was to give the interviewees an avenue to express their views freely with regard to the contribution made by AC to the manner in which they adopted their IT solution.

From the interview it was noted that not only was the external information instrumental in enabling the SMEs identify the right IT solution, but that it also played a role in helping them to evaluate the effectiveness of their implemented technology. **NaEmp3**'sview captures this: "*We obtained external information from consultants and also other firms that were using the same system. It was very easy to check if we were using the system correctly by comparing ourselves with the other firms*."

In corroborating the findings from other research instruments and the subsequent analysis, a correlation can be established between the SMEs' AC and their IT adoption strategy. The evidence suggests that SMEs with weak AC were more disadvantaged in their IT adoption process. A number of activities were done without any clear planning. Conversely, it is clear that those SMEs that were found to have strong AC had a better planned and more systematic IT adoption strategy, thereby having a superior adoption process to that of their counterparts with weak AC.

The next subsection provides a summary and interpretation of the findings for the third research sub-question.

5.5.3.3 Interpretation for Sub-Research Question 3

Third research sub-Question:

How does Absorptive Capacity influence the choice of IT adoption strategy?

While being keenly aware of the reality that the majority of SMEs in developing countries are more challenged than their counterparts in developed countries (Kapurubandara & Lawson, 2007; Kapurubandara, 2008; Apulu et al., 2011), the study finds that in all cases the SMEs in this study could have done with improvements to their IT adoption strategies. In other words, the IT adoption strategies were generally found to be wanting in one way or another, albeit in varying degree. This conclusion

appears consistent with those made by other researchers such as Apulu et al. (2011); Awa et al. (2011) and Manochehri et al. (2012), who have argued that the IT adoption processes of many SMEs are far below the acceptable ideal and this has resulted in more failures than successes in their IT investments.

Notwithstanding, this study provided sufficient evidence to endorse the fact that those SMEs that possessed strong AC had more superior IT adoption strategies than did their counterparts with weak AC. The findings indicate the existence of a correlation between AC and IT adoption strategy employed by the SMEs. That is, the stronger the AC within the SMEs the better their IT adoption strategies. In their empirical work, Harrington and Guimaraes (2005) provide evidence that AC has a clear role in the success of IT adoption. AC therefore is a component that promises to provide further understanding of SMEs' IT adoption.

The meaning of these findings is that AC has the potential of being exploited to improve the IT adoption strategies of Kenyan SMEs. This can be done, firstly, by improving the AC levels of SMEs and, consequently, providing a framework that will lead to the effective exploitation of the rich elements of AC.

The findings of each of the research sub-questions presented in this chapter contributed to the overall development of the proposed ITASIM. The section that follows indicates how research sub-questions 1 to 3 informed the framework of the proposed model.

5.6 Framework of ITASIM Informed by Research Findings

Each research sub-question in this study was carefully crafted to provide findings that would be useful in the development of the ITASIM. Table 5-15 is used to show how the findings from the first three research sub-questions contributed to the development of the proposed ITASIM.

Table 5-15: Findings informing the framework of the ITASIM

Research findings informing the framework of the ITASIM		
Research question	**Contribution to ITASIM**	**Process area(s)**
1. How does AC contribute to organisational performance of SMEs in Kenya?	Findings indicate that strong AC has a positive influence on SME performance. The model is built on the premise that AC can be exploited to contribute to better SME IT adoption strategies. The model involves a series of stages with the first one being empowering the SMEs to improve their AC.	Absorptive Capacity
2. How effective are the IT adoption strategies employed by SMEs in Kenya?	A number of weaknesses have been revealed in the IT adoption processes currently employed by SMEs right from the decision stage to the evaluation stage. These current weaknesses or challenges that are peculiar to the SMEs in developing economies are dealt with in the Strategy Improvement process area of the model. Furthermore, the findings that the current IT adoption strategies are flawed provide endorsement for the need to offer a model that can be employed by the SMEs to increase the probability of success in their IT investment.	Strategy Improvement and IT Adoption Strategy
3. How does AC influence the choice of IT adoption strategy?	The findings indicated that although all the SMEs had employed IT adoption strategies that could all do with improvements in one way or the other, those SMEs that exhibited strong AC had employed better IT adoption strategy. This indicates that a connection exists between AC and the IT adoption strategy employed. These findings provided grounds for creating a link in the model between the AC and Strategy Improvement process areas such that the AC process area becomes a feed to the Strategy Improvement process area, which in turn provides a feed to the IT Adoption Strategy process area. This link creates room for exploitation of the rich aspects of AC in the model.	Absorptive Capacity, Strategy Improvement and IT Adoption Strategy

Table 5-15 reveals that the proposed ITASIM not only finds its strong foundations in the literature reviews (see Chapter 2 Table 2-10; Chapter 3 Table 3-4), but also from the empirical findings of this study, thus giving the model a strong scientific base.

The conclusions regarding the findings and analysis presented in this chapter is presented in the next section.

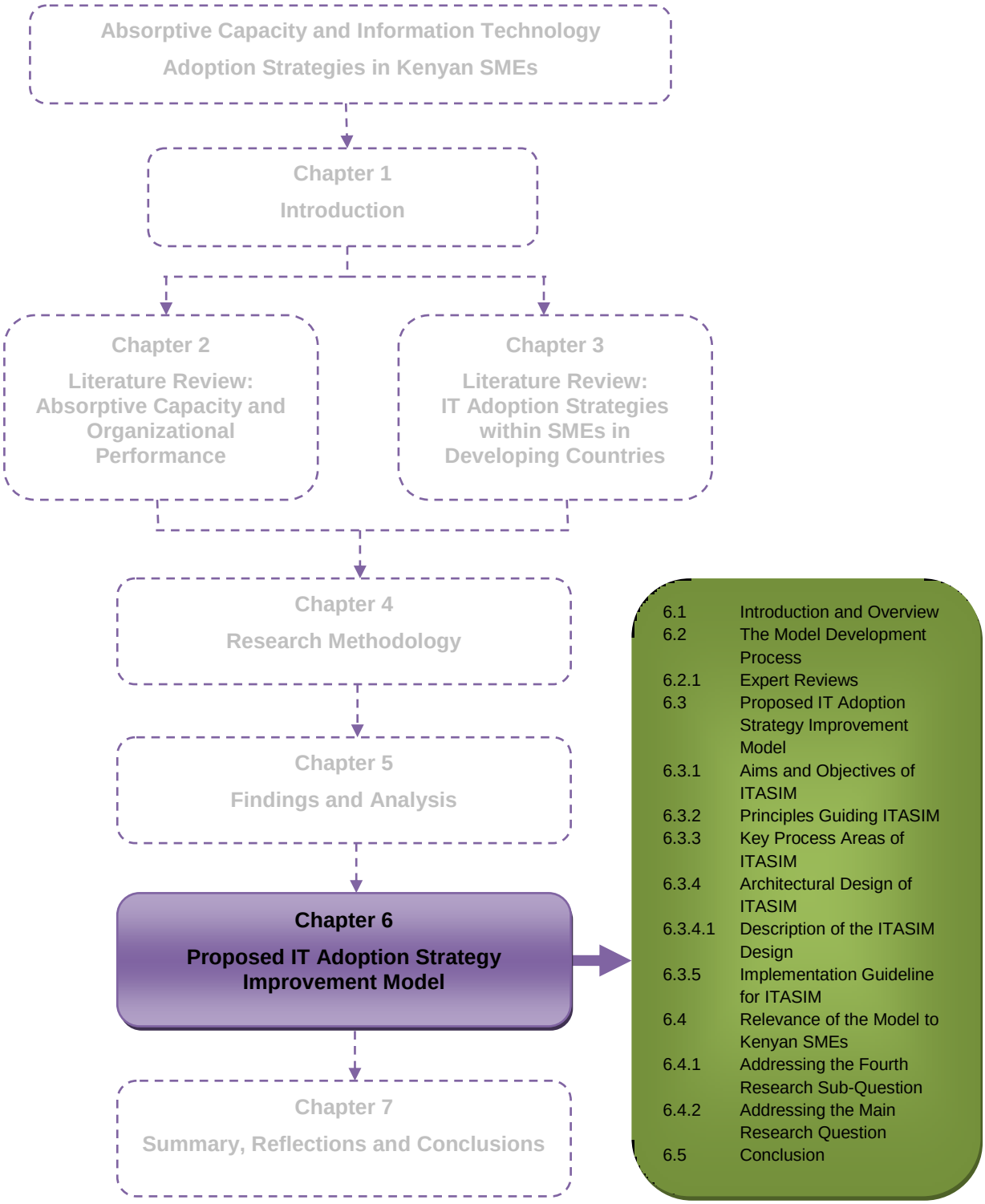
5.7 Conclusion

In this chapter, discussions on the findings relating to the first three research sub-questions of this study were presented. These findings support a number of empirical reports that have indicated that AC is a significant predictor of an organisation's performance and therefore a strategic asset for the organisation (Volberda et al., 2010; Daud, 2012; Deed, 2001; Nieto & Quevedo, 2005; Francalanci & Morabito, 2008; Schildt et al., 2012).

Furthermore, from the study findings presented here, we can discover the existence of a cognitive path that can help us understand the connection between an SME's AC and its choice of IT adoption strategy. The findings reveal that SMEs with strong AC are more prepared and better positioned to effectively adopt IT if the rich aspects of AC are carefully exploited. On the other hand, low levels of AC within SMEs limit their ability to employ effective IT adoption strategies. To be able to employ effective IT adoption strategies SMEs need skills that enable them to sufficiently understand the IT adoption process. Although most SMEs in developing countries have scarce skilled manpower, with strong AC they could exploit the vast amounts of external information together with their limited internal expertise and knowledge to improve their IT adoption process. It is important for the SMEs to be able to recognise, anticipate and, accordingly, take action in response to market shifts or new technological developments in a way that is superior to their competitors. This can be supported by strong AC.

The study findings presented in this chapter, along with those from the literature reviews, are used to form the pillars of the proposed ITASIM. This model indicates how SMEs in Kenya can exploit the rich aspects of AC to improve their IT adoption strategy. This model is presented in the next chapter.

CHAPTER 6 – DIAGRAMATIC OVERVIEW



CHAPTER 6
PROPOSED IT ADOPTION STRATEGY IMPROVEMENT MODEL

6.1 Introduction and Overview

In Chapter 5, the findings from the case studies relating to the first three sub-questions were presented. Based on these findings, the following three major arguments were advanced with regard to the three research sub-questions: a) that Absorptive Capacity (AC) contributes to the organisational performance of Small and Medium Enterprises (SMEs) (the findings revealed that SMEs that exhibited strong AC attributed elements of AC as contributing to the performance of their enterprise); b) that the majority of the SMEs that participated in the study still wrestle with the problem of employing effective Information Technology (IT) adoption strategies; and c) that there is a correlation between SMEs' AC and their choice of IT adoption strategies. Despite the fact that, in all cases, the SMEs that were recruited to participate could do with improvements to their IT adoption strategies, irrespective of their levels of AC, the findings provided sufficient evidence to support the argument that SMEs with strong AC had superior IT adoption strategies than did their counterparts with low levels of AC.

It is these findings from the case studies alongside those from the literature reviews that have informed the basis for the proposed IT Adoption Strategy Improvement Model (ITASIM). Having pointed out the integral role played by SMEs in Kenya in generating employment and stimulating economic growth (see section 3.6.1), and further in presenting the challenges faced by these enterprises in their efforts to effectively adopt and convert the full potential of IT into practice, it is clear that these SMEs are in dire need of a pragmatic solution to salvage their current state. Poor IT adoption strategy within SMEs is often sustained by a lack of knowledge of what constitutes an ideal IT adoption strategy. Furthermore, there is a lack of clear guidelines for SMEs to use to help them in their IT adoption process. The model, as a process for adopting IT, may offer SMEs a better way of ensuring effectiveness in their IT adoption process. The model provides an IT adoption approach that will add substantial value in terms of technological impact to the SMEs.

Before the presentation of the model, this chapter begins by elaborating the process that was followed in developing the proposed ITASIM, followed by the presentation of the expert reviews. The chapter also presents the model implementation guidelines. Further, the relevance of the model to Kenyan SMEs in terms of the fourth research sub-question and the main research question posed in this study is addressed. Finally, a conclusion to the chapter is given.

6.2 The Model Development Process

The literature review findings (see Tables 2-10 and 3-4) on how various theories from the literature informed the development of the ITASIM and the research findings presented in the previous chapter formed the foundation upon which the proposed ITASIM is developed. Arsham (2006) observes that a model is a representation of part of reality designed to understand or solve a given problem. The proposed model has been built to provide a possible solution for Kenyan SMEs in their efforts to adopt IT effectively, because as many reveal, they are yet to attain maturity in their IT adoption strategies.

To make certain that the ITASIM is developed in a way that is contextually relevant for the SMEs, the researcher adopted an approach that ensured active user participation. Furthermore, to guarantee that the model was in line with the general practices and that it could seamlessly blend into the SMEs' environment, feedback from experts' reviews was taken into consideration.

The model was developed during a series of phases. The first phase was the gathering of findings from the literature reviews and case studies. From these findings, the first draft model was developed. This draft model was presented to the experts (business analyst, academics in the fields of business and IT) for review. From the feedback that was obtained from these reviews, a further refined version of the model was developed and then a further review was done to confirm that the stakeholders and the expert opinions were captured. There were, in total, two cycles of these reviews of the draft model that eventually translated into the final version of the ITASIM. These cycles of reviews by the experts ensured that the model was relevant and valid in a practical setting.

Figure 6-1 shows the summary of the ITASIM development process.

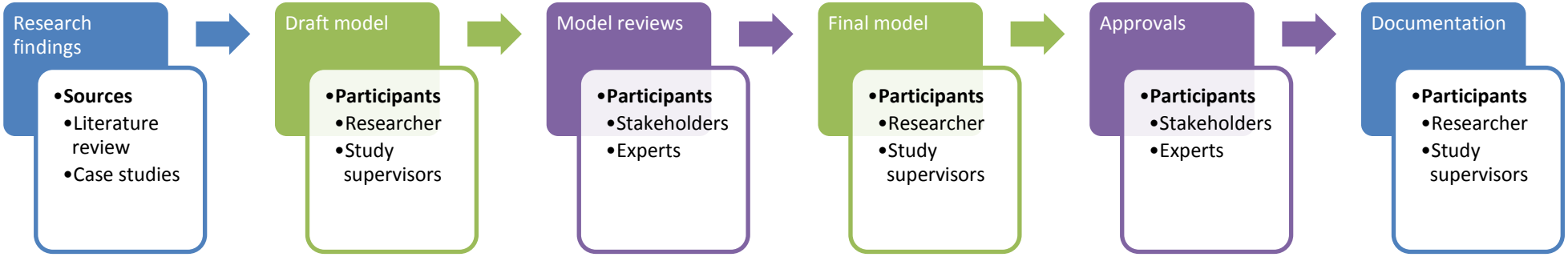


Figure 6-1: ITASIM development process

To determine the relevance and validity of the proposed ITASIM and its implementation guidelines, as indicated in Figure 6-1, these were both subjected to a series of expert reviews. These reviews are presented in the following subsection.

6.2.1 Expert Reviews

A number of authors have used and underscored the role played by experts in validating the products of various projects (see section 4.5.3). This study made use of experts to identify potential problems with the ITASIM and its implementation guidelines, as well as to offer validation for these products (Hobrook et al., 2007). This subsection presents the experts' opinion on the proposed ITASIM. These opinions were critical in the refinement of the proposed ITASIM and its implementation guidelines. Table 6-1 presents the demographics of the experts who participated in the study. In total five experts were recruited, although any number between two to five is considered adequate to evaluate a given product successfully (see section 4.5.3). Three experts were drawn from Kenya and two from South Africa.

Table 6-1: Experts' demographics

Highest qualification	Country	Present role	Pseudo name
PhD	South Africa	An enterprise solution expert and well versed in SME and frameworks. A Director, Project Governance at a Provincial Secretary Office.	Exp1
PhD	South Africa	Professor at a university in South African – experience in working on models and frameworks to support SMEs and businesses.	Exp2
PhD	Kenya	Professor at a university in Kenya – an expert in business strategies and knowledge management.	Exp3
PhD	Kenya	Professor at a university in Kenya – expert in computer-based systems modelling.	Exp4
Masters	Kenya	Several years of experience working as a director of an established firm that supports entrepreneurship in SMEs.	Exp5

As indicated in Table 6-1, the experts were carefully selected to include only those who had relevant expertise within the areas of SMEs, IT and Absorptive Capacity. An evaluation sheet (see Appendix E) with set of questions was used to elicit the expert opinions on the proposed ITASIM and its implementation guideline. The use of an evaluation sheet ensured that the focus of review was maintained throughout the evaluation process and that some degree of standardisation in the tasks carried out by expert was realised (Jansen & Hak, 2005). Furthermore, to ensure that the experts had sufficient content on the items being reviewed, a summary of the ITASIM and its implementation guidelines was also provided to the experts.

A summary of the feedback received from the experts, together with the action taken where applicable, is presented in Table 6-2.

Table 6-2: Summary of experts' opinions on ITASIM

Review themes	Summary experts' opinion	Comments/action taken
Simplicity	The experts were of the view that although the model and its implementation guidelines were simple, there was need to have some degree of preparedness before its adoption. As **Exp1** observed, "*The model is simple enough to be understood by SMEs provided that it is introduced at the correct level".* A view echoed by **Exp4** who observes that, *"While the level of simplicity is acceptable there is need to consider SMEs with weak ICT maturity who might require assistance and further explanations in order to understand all the aspects involved"*. Expert **Exp2** had this to say regarding the simplicity of the implementation guidelines: "*because of its excellent use of the flow diagram, ITASIM Implementation Guideline Value Chain, using the SDLC, makes the implementation of the model easy for the SME to understand".*	To ensure that SMEs with a low level of IT maturity understand and appreciate the various stages of IT adoption, it has been recommended that before embarking on stage 3 (IT Adoption Strategy) of the ITASIM, a technologically literate resource person should be identified and hired or contracted. The individual should help provide support in all the stages of IT adoption.
Relevance	The comments were very positive and encouraging with regard to the relevance of the ITASIM and its implementation guidelines. All the experts were of the opinion that the both the model and guidelines are relevant in supporting the SMEs improve their IT adoption strategies. For example, with regard to the relevance of the model **Exp5** stated, *"The model's double focus [Absorptive Capacity and IT adoption] ensures that the SME is able to not only improve its IT adoption process but also the Absorptive Capacity"*. **Exp1** had this to say regarding the relevance of the ITASIM guidelines, *"guideline is entirely comprehensible and coheres into a united whole through the series of successive phases that have been described. Following the implementation guideline the SME should be able to implement the model".*	There is no indication from the expert reviews that the relevance of the ITASIM and its implementation guidelines is disputed.

Review themes	Summary experts' opinion	Comments/action taken
Strength &weaknesses	With regard to the strength of the ITASIM and its implementation guidelines, the following is a summary of the experts' views: • The model has theoretical roots in well-grounded and successful benchmark theories. • The objectives and principles of the ITASIM are aimed at improving SME IT adoption strategies. • The architectural design is well thought out and provides a strong supporting structure for the model. • The model is aimed at improving IT throughout the entire organisation, from employees to management. • ITASIM Implementation Guideline Value Chain provides a clear, step-by-step overall process, making the model easier to understand and to apply. With regard to the weaknesses of the ITASIM and its implementation guidelines, the following were a summary of the experts views: • There are no indications as to who should play what role. • SMEs with low levels of technological maturity may experience difficulty implementing the model.	An explicit recommendation has been made that the SMEs employ an IT expert before commencing the third stage (IT Adoption Strategy) of the ITASIM. Furthermore, it has been suggested that some IT up-skilling be done to the likely users of the system before embarking on the system implementation. These measures will help cushion SMEs with weak levels of technological literacy from facing difficulties in understanding and effectively adopting the model. One of the key activities in the first phase (Initiation Phase) of the ITASIM Implementation Guideline Value Chain is responsibility assignment and a consequent review of the responsibility assignment document in the second phase (Analysis Phase). These activities will ensure that roles are clearly mapped out to assure effective realisation of the deliverables.

Review themes	Summary experts' opinion	Comments/action taken
Additional research	The experts observed that • additional research should centre on continued testing and challenging the concepts outlined in the model. • research could be carried out on how to monitor and evaluate the ongoing efficacy of the model.	These suggested additional areas of research have been captured in Chapter 7 section 7.7.

The experts opinions presented in Table 6-2 provide authoritative views and insights into the practicability of the proposed ITASIM to support the SMEs in improving their IT adoption strategies. It is clear from these expert views and opinions that they consider the ITASIM a helpful tool that will contribute to raising the success rates of IT investment initiatives by SMEs. The proposed model will enable these enterprises to achieve this by helping them to progress from their current situation – characterised by low levels of AC and deficient IT adoption strategies – to a desired level of strong AC and effective IT adoption strategies that will see these firms benefit most from their IT investments.

In order to add to the ongoing discussion about the relevance and applicability of the ITASIM, the researcher continues to identify and invite experts to add accurate and credible opinion to this debate.

Before presenting the architectural design of the proposed ITASIM, the following sub-topic begins by presenting the aim and the objectives of the model. Further, the principles guiding the proposed model are presented.

6.3 Proposed IT Adoption Strategy Improvement Model

A model is a representation of part of reality created to assist in designing a solution and to aid in understanding a given problem (see section 1.4). Although a model should be adapted to be able to address the task for which it is designed effectively, its degree of sophistication or complexity should mirror the cognitive ability of the stakeholders (Arsham, 2006). As was indicated in Chapter 3 (see section 3.2.2) SMEs in developing countries face numerous challenges, which include not having well-trained and qualified staff. The proposed ITASIM takes cognisance of this and care was taken to ensure that the model could be easily understood by the SME management and employees.

This study endeavours to develop an ITASIM that can be used by SMEs in Kenya to help them improve their IT adoption strategies. Accordingly, the ITASIM can be used as a blueprint for enacting and creating a strong AC within SMEs and exploiting this to improve their IT adoption strategies to ensure that SMEs increase their probability of adopting IT effectively. For the purpose of developing such a model, it was necessary to understand, firstly, whether there is a connection between the SMEs'

AC and their organisational performance (research sub-question 1), secondly, whether the current IT adoption strategies employed by the SMEs in Kenya are effective (research sub-question 2), and thirdly, if the SMEs' AC did indeed influence the manner in which they adopted their IT solution(s) (research sub-question 3). These matters have been conclusively addressed in the previous chapter (see Chapter 5 for sub-questions 1 to 3). Finally, it was important to present the relevance of such a model to the SMEs in Kenya (research sub-question 4); this is addressed in this chapter (see section 6.4)

6.3.1 Aim and Objectives of ITASIM

The major aim of the proposed ITASIM is to aid SMEs in Kenya in their IT adoption process. This led to the following three specific objectives of ITASIM:

- to offer SMEs a solution for improving the levels of their AC
- to harness the rich aspects of AC in improving the IT adoption strategies employed by the SMEs by creating a synergy between the SMEs' AC and the IT adoption processes
- to create an IT adoption model that can be readily accepted and easily applied by SMEs in Kenya and other developing countries, as these operate under similar environments.

The next subsection presents the guiding principles behind the proposed ITASIM.

6.3.2 Principles Guiding ITASIM

For the purposes of achieving the objectives outlined in the preceding subsection, the following principles are used to guide ITASIM:

- improving the levels of AC
- exploiting AC to improve IT adoption strategies
- improving the impact of IT.

This set of guidelines was instrumental in guiding the development process of ITASIM, as it ensured that the development process was predictable and consistent, making it possible to maintain focus on the realisation of the aim and objectives of the ITASIM.

The proposed ITASIM is built on three key process areas. These are elaborated in the following subsection.

6.3.3 Key Process Areas of ITASIM

The ITASIM is primarily a structural grouping of independent elements which can be viewed in isolation as single process areas. The process areas that make up the ITASIM are: AC, Strategy Improvement and IT Adoption Strategy.

Absorptive Capacity

As previously stated in Chapter 2 (see section 2.2) the term is used to refer to acquisition of new knowledge and the use of this knowledge to improve the organisation's competitiveness (Lane et al. 2006; Daghfous, 2004; Cohen & Levinthal, 1990). Cohen and Levinthal (1990, p. 128) define AC as the organisation's ability to "recognize the value of new information, assimilate it, and apply it to commercial ends". Volberda et al. (2010) observe that AC is a vital link between the external knowledge and the organisation's performance and its capacity to innovate. AC is a multidimensional concept that consists of different skills as well as dimensions. Zahra and George's (2002) definition of AC that has been adopted in this study takes cognisance of this fact and have decomposed AC into four different dimensions categorised into two phases:

- potential AC which involves acquisition, and assimilation, and
- realised AC which involves transformation and exploitation.

The AC process area of the ITASIM is based on these four dimensions of AC and its objective is to provide SMEs in Kenya with clear guidelines for building strong AC.

Strategy Improvement

The literature review in Chapter 3 (see Section 3.3) elaborately describes this process area where essential elements of a good strategy are presented (see Table 3-2). A good strategy is presented as one that

- is well understood and shared within the organisation
- is flexible
- is a result of different inputs from stakeholders

- is a result of careful and insightful analysis of external environments and organisational capabilities
- exploits areas where the organisation has competitive advantage.

These elements were carefully added to the ITASIM framework through this process area as one way of injecting effectiveness into the IT adoption strategy employed by SMEs.

Furthermore, the Strategy Improvement process area of the ITASIM blends two process areas (AC and IT Adoption Strategy) by providing a structure for harnessing AC to enrich the IT adoption strategy. This process area (Strategy Improvement) should be seen a creating a synergy between an SME's AC and its IT adoption strategy.

IT Adoption Strategy

IT adoption is commonly applied to describe a three-stage process (Sharma & Bhagwat, 2006; Russell & Hoag, 2004; Thong, 1999; Laudon & Laudon, 2009): decision-making stage, implementation stage and evaluation stage. These processes are detailed in Chapter 3 (see section 3.4). This three staged of IT adoption has been adopted in this study.

When an IT adoption strategy is carefully crafted and well implemented it will most certainly result into good returns for the SMEs; however, if it is not well thought out, the effect can be devastating. The various shortcomings of the present IT adoption strategies as exposed in the literature review (see Table 3-3) and the case study findings are taken into consideration in this process area by providing an IT adoption strategy that is void of such shortcomings while at the same time being realistic for the context of SMEs in Kenya.

The next subsection presents the architectural design of the ITASIM.

6.3.4 Architectural Design of ITASIM

The architectural design of the ITASIM is primarily composed of the three process areas presented in the preceding subsection; namely, Absorptive Capacity, Strategy Improvement and IT Adoption Strategy. As stated previously, the ITASIM is designed to provide a road-map for SMEs to use to improve their IT adoption strategy,

resulting in the increased impact of IT investments in SMEs, which a number of studies have indicated is very low for most SMEs in developing countries (Awa et al., 2011; Manochehri et al., 2012). The model allows for interaction between SMEs' AC and its IT adoption strategy.

The three process areas of the ITASIM assume a layered design whereby each layer is made up of processes of functions that are to be executed to produce deliverables that interlink. Figure 6-2 shows the synopsis of the ITASIM, indicating the proposed layers of the model.

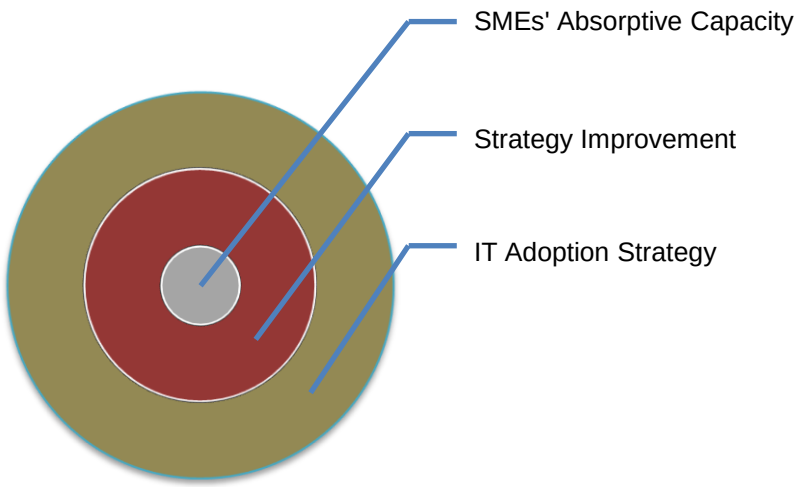


Figure 6-2: Outline of ITASIM

As was discussed in Chapter 3, many SMEs in developing countries are faced with myriad problems and challenges in their IT adoption processes. In considering these, the development of this model was primarily motivated by both the findings from the literature (see Chapters 2 & 3) and those from the field study (see Chapter 5), which indicated the relevance of AC, problems and challenges facing SMEs in their IT adoption processes and how AC influences IT adoption strategies within SMEs. From these findings, it was clear that AC is a factor that can be exploited to help improve the probability of SMEs having a worthwhile experience with their IT investments.

Although there is limited literature on IT adoption by SMEs in Kenya, there is none that focuses on AC in SMEs or how this relates to IT adoption strategies in these enterprises. To expand this on a global scale, no work has been done to test the link between AC and IT adoption strategies within the context of SMEs. Nonetheless, the

available literature does provide the basics that were fundamental to the development of the proposed ITASIM. Table 6-3 provides a summary of the layers with each being linked to the data source that informed it.

Table 6-3: Summary of ITASIM layers

Layer	Description	Source of data informing layer
Absorptive Capacity	With the realisation of the critical role played by AC in improving the performance of SMEs, this layer focuses on the improvement of SMEs' AC. It is this strong AC that will in turn be exploited to improve the IT adoption strategies employed by the SMEs.	Literature discussion on AC theory (Chapter 2); and the field study findings (Chapter 5).
Strategy Improvement	The layer focuses on overall strategy improvement by ensuring that elements of effective strategy as revealed in the literature are injected into the model. Furthermore, the layer plays a pivotal role by linking SMEs AC layer and the IT Adoption Process layer thereby offering an avenue for harnessing AC to enrich various processes (decision, implementation, and evaluation) within the IT Adoption Process layer.	Literature review findings on elements of a good strategy (Chapter 3); literature discussions on strategic position of AC (Chapter 2); and the field study findings (Chapter 5)
IT Adoption Process	The primary focus of this layer is on the three stages of IT adoption (decision, implementation, and evaluation) as adopted in this study. The layer ensures that the present loopholes in the current strategies used by SMEs, as exposed in the literature findings and findings from the field study, are addressed.	Literature discussion on IT adoption stages and shortcomings of the current strategies used by SMEs (Chapter 3); and findings from the field study (Chapter 5).

Figure 6-3 now presents the comprehensive architectural design of the ITASIM, detailing the key processes within each layer/process area and how the process areas are interlinked.

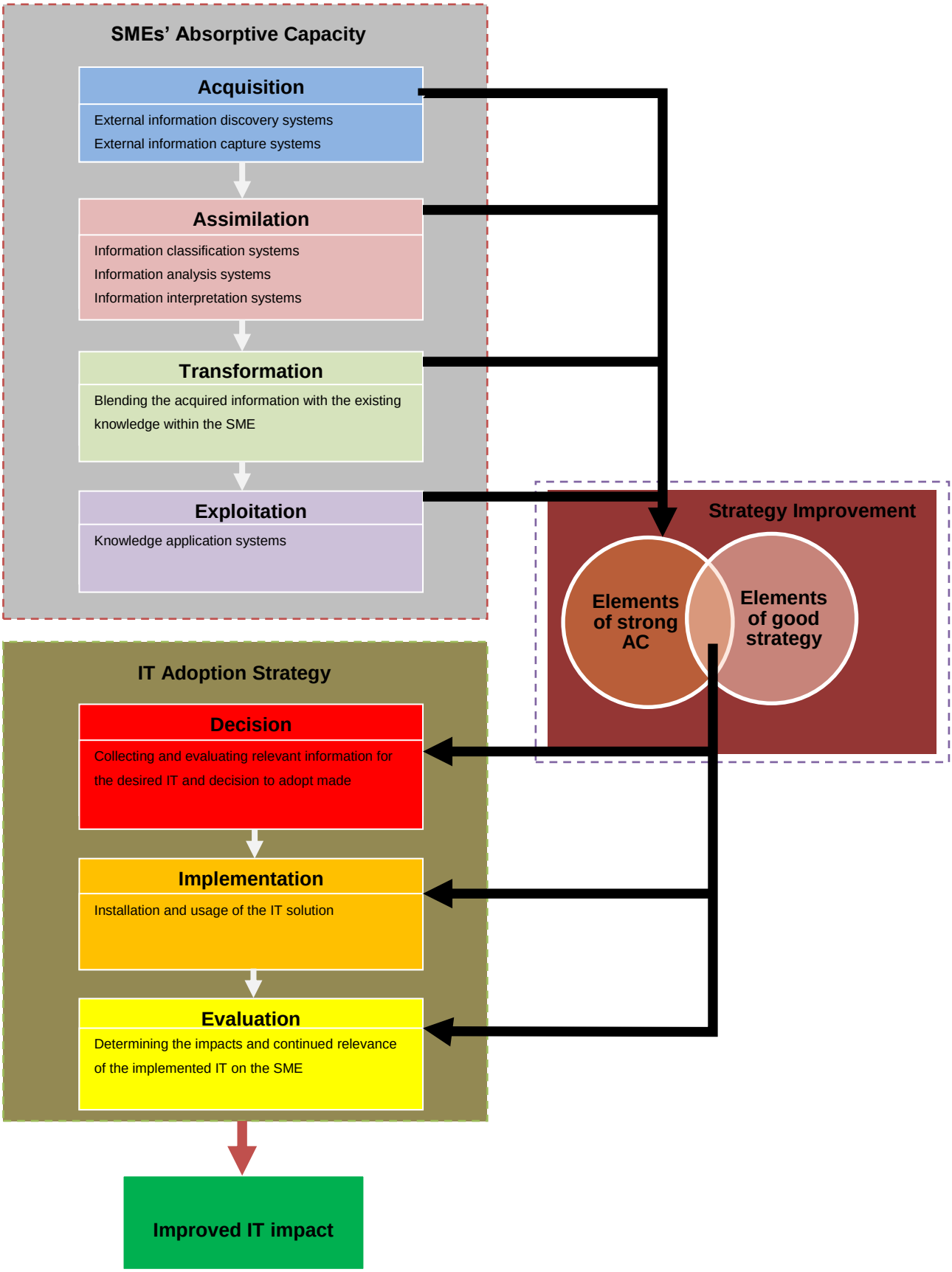


Figure 6-3: Architectural design of ITASIM

In the next subsection a detailed description of the ITASIM design is presented.

6.3.4.1 Description of the ITASIM Design

In terms of this model, the SMEs begin by improving their realised AC (Acquisition and Assimilation) and then ascending to improving their potential AC (Transformation and Exploitation). These activities are realised in the ITASIM AC process area. Having developed a strong AC, these rich elements of AC are articulated by the SMEs as strategic assets alongside the various elements of a good strategy. This articulation process is done within the ITASIM Strategy Improvement process. These rich aspects of AC together with the elements of a good strategy are injected into each of the three main stages of the IT Adoption process area (Decision, Implementation and Evaluation).

Stage 1: SMEs' AC

This process area is the first stage in the use of the ITASIM. This stage primarily involves the improvement of the SMEs' AC in order to create strong AC within the enterprise. As was revealed in the findings from the field study (see Chapter 5 section 5.5) and in the literature review (see Chapter 2 section 2.3.1), a number of SMEs struggle with their AC and many are characterised by weak AC. Furthermore, both the field study findings and those from the literature review agree that AC plays a pivotal role in the improvement of SME performance. This understanding provided strong justification for the need to create strong AC within SMEs, not only with a view to improving the overall organisational performance of SMEs, but also for setting the stage to exploit the rich aspects of AC to help improve SME IT adoption strategies. The field study findings (see Chapter 5 section 5.5.3) indicated that SMEs that exhibited strong AC had better IT adoption strategies than did their counterparts that showed low levels of AC.

AC is a multilevel theory that can be found in both organisational units and at individual levels (Lane et al., 2006; Daghfous, 2004; Bergh & Lim, 2008; Cohen & Levinthal, 1990). It is therefore important that efforts to improve SME AC are extended to individual members of SMEs as well.

The processes in this process area are broken down into the four stages of AC:

Acquisition

This process emphasises the need for the SME to develop appropriate structures and processes that can be used to locate, evaluate and acquire relevant external information. Before relevant external information is acquired, SMEs need to be able to determine what is and what is not relevant. For SMEs to be in a position to appreciate and correctly determine the likely value of given external information, it is imperative that they possess similar knowledge (Cohen & Levinthal, 1990; Zahra & George, 2002). For example, an SME will not be able to accurately determine the value of a particular IT solution if they do not have some level of knowledge in IT. It is imperative therefore that the SME identify the kind of information it has and since most SMEs do not have research and development (R&D) departments such knowledge will often be found to reside within individual members/employees. The SME management should take note of the IT skills of individual workers, as well as larger units. It would be useful in order to build this internal knowledge repository that the management careful employ those individual possessing relevant IT skills. Further, the management need to access documents with information about new technological developments, and encourage contacts with individuals outside the SME who are technologically literate. Management could also exploit other channels of communication, such as training, professional meetings, workshops, amongst others.

Once the SME has identified the kind of knowledge that is available internally, it will be easier to compare the outside information with what they possess to determine whether the external information is relevant or not. But how do they get to access this outside information? In order to address this question SMEs will need to develop systems that facilitate knowledge acquisition. They can do so by making acquaintance with other SMEs or organisations in similar businesses. Such established acquaintances need to be characterised by trust, respect and friendship (Jimenez-Barrionuevo et al., 2011). This will ensure that the relationships translate into the sharing of relevant information. Such sharing of information will mean that the SME develops clear structures of communication between it and the external environment. Further, it will be useful for them to develop appropriate structures that facilitate communication between members inside the SMEs, as well as within the

SME units. A learning culture, also referred to as a knowledge-friendly culture, needs to be established within SME.

Assimilation

Once relevant information has been acquired by the SME the next step will be to classify, analyse, interpret and eventually internalise the information through its own routines.

The members of the SME need to be able to interpret and understand the external information in order to benefit from it. For this to take place the following needs to be in place (Jimenez-Barrionuevo et al., 2011):

- Common language between the SME and the external entity.
- Complementarity between resources and capabilities of the SME and the external entity.
- Similarity between the SME's capability and the external entity.
- Compatibility of the organisational cultures of the SME and the external entity.
- Compatibility of the operating and the management styles of the SME and the external entity.

The existence of these elements will ensure that that the SME is able to fully benefit from the information obtained from the external entity, as it will blend almost seamlessly with the existing knowledge. Furthermore, the members of the SME will not treat such external information as alien as they can readily associate with it.

Transformation

Transformation is the ability of the SME to internalise and convert the newly acquired and assimilated information. In other words, it is the capacity of the SME to bring together the existing knowledge with the newly acquired knowledge. For this to take place effectively the SME will need to

- ensure that there are many informal conversations within the SME that involve commercial activity
- ensure that there are inter-unit meetings organised to provide avenues for discussing the development and tendencies of the SME

- publish informative documents periodically and have these circulated widely within the SME
- ensure that important information is communicated regularly to all units.

Exploitation

This is the ability of the SME to bring together the information acquired, assimilated, and transformed for the SME's application and use. This would be considered a strategic dimension for the SME since it produces the results following the efforts to acquire, assimilate and transform information.

This process involves the development of systems that will take advantage of the new form of knowledge for the benefit of the SME. This should involve the development of a clear division of functions and responsibilities regarding the use of external information. Furthermore, capabilities and abilities need to be developed to exploit the external information.

Stage 2: Strategy Improvement

The Strategy Improvement process area of the ITASIM forms the second stage of the model. This stage provides for harnessing both the elements of the strong AC created in the previous stage with the elements of a good strategy. These are pulled together and are injected into each stage of the IT adoption strategy in the subsequent stage of the ITASIM; that is, the IT Adoption Strategy process area.

At this stage, the SME will need to harness the rich aspects of strong AC that have been built by ensuring that the following are in place and their workings are well understood by the relevant members of the SME:

- external information discovery systems
- external information capture systems
- information classification systems
- information analysis systems
- information interpretation systems
- information internalisation systems
- information conversion and blending systems

- knowledge application systems

These elements are infused into the three stages of IT adoption strategy.

Not every strategy can pass the test of effectiveness. Accordingly, an effective strategy should possess certain essential elements (see Chapter 3 Table. 3-2):

- It should be well understood and shared within the SME.
- It needs to be flexible to accommodate changes that are necessitated by circumstances falling within or outside the SME.
- It should be a result of different inputs from stakeholders.
- It should follow careful and insightful analysis of the external environment and the SME's internal capabilities.
- It needs to exploit areas where the SME has competitive advantage.

These elements should be included in each of the three stages of IT adoption. This will ensure that effectiveness is injected in each of the three stages to ensure that the entire IT adoption strategy is effective.

Stage 3: IT Adoption Strategy

This is the final process area of the ITASIM. This process area acknowledges the widely accepted process of IT adoption, that is, IT adoption is a three-stage process: Decision stage, Implementation stage, and Evaluation stage. These stages are presented in this process area, which indicates how the elements of the strategy improvement process area are carefully injected into each stage to ensure that the output from each IT adoption stage is effective and will eventually translate into successful IT adoption by the SME. To ensure that these processes are affectively implemented it is important that the SME management identifies a resource person who is technologically literate before embarking on the IT adoption stages. Such an individual will be instrumental in helping the SME understand and appreciate the various stages involved in IT adoption by offering technological advice and leadership in the IT adoption processes.

Decision

This is the preliminary stage of IT adoption. In this stage the management of the SME explores what the market has to offer in terms of technological solutions. The SME needs to consider the strategic benefits the technology can offer as well as efficiency gains to be realised. It then decides whether or not to introduce a particular technology into the SME.

Therefore, two decisions can be made here: adoption decision or rejection decision. In this phase the SME will need to do some investigation, do some research, deliberate and eventually make that all-important adoption decision to introduce a new technology into the SME. However, it might be wise for the SME to consider making a rejection decision, albeit only temporarily, if its process of investigation, research and deliberation reveal that the SME does not have the capacity to make an adoption decision.

The processes of exploration, research and deliberation can be greatly enhanced by existing strong AC within the SME. For example, external information discovery systems and external information capture systems built earlier should be exploited to ensure the investigation and research activities of the decision stage are done in effectively. Consequently, systems of information classification, information analysis, information interpretation and information internalisation need to be exploited during the deliberation activity of the decision stage. Finally, knowledge application systems will be key to ensuring that the adoption or rejection decision is carried out in the best possible manner. As each of these activities is carried out the elements of effective strategy should be infused in all stages.

The management should further understand their business well before making the decision, as the technology should be aligned to the needs of the SME. It was evident from the findings of the study cases that many of the SMEs rarely deliberate on this critical decision. This is captured by the remark from **KiMgr1** who stated that, "*Everybody uses it [the technology]*" a view shared by **MoEmp3**, "*Other business[es] also use it[the technology]".* It therefore appears that the reason for adoption was that it was fashionable to do so.

As revealed in the literature (see Chapter 3) and the findings from the field study. A number of SMEs do not acquire the necessary information regarding the technology they intend to adopt. Often this is arbitrarily done without deep consideration as to the nature of the technology, its ability to effectively address the unique needs of the SME and the SME's level of preparedness to adopt the technology. These gaps are effectively addressed if the SME follows the process illustrates in the decision stage which involves injecting the strong elements of AC and those of a good strategy.

Implementation

In this stage of IT adoption, technology deployment takes place following a decision by the SME to adopt IT. This can be considered as a stage during which a positive decision from the previous stage is operationalised. This is a critical stage in the IT adoption process as it determines the way and the extent to which the adopted IT will be used by the SME.

The decision to adopt translates into several activities directed at the establishment of the use of the adopted technology by the SME. These activities include hardware and software acquisition, installation, customisation, and training.

Despite the fact that the technology can be developed in-house or ready-made (commercial, off-the-shelf solutions), most SMEs, as revealed in the literature (see Chapter 3) and in the case study findings (see section 5.5.2), make use of ready-made solutions.

In this stage SMEs normally introduce IT vendors and consultants into their IT adoption process. This is because many SMEs do not have sufficient technological capabilities to carry out the implementation. The key role of IT vendors and consultants in this stage will be to assist the SME with the system acquisition and installation as well as training the system users.

These processes of acquisition, installation and training should be supported with elements of strong AC alongside effective strategy. For example, during acquisition the external information discovery and capture systems should be used to identify the technologies that the market has to offer which have the potential of meeting the SME's needs. In user training, knowledge application systems should be used to ensure that users readily accept the new system by learning to appreciate its

relevance to their operations by aligning the technology with the SME's strategy. In incorporating the elements of a good strategy, the processes need to be well understood within the SME and there should be room to accommodate changes. Furthermore, inputs from various members of the SME should be encouraged.

Although implementation may seem to be a technical affair, considering issues such as technological infrastructure and system installation, there are a host of other organisational issues involved. Implementation is aimed at ensuring that there is minimal or no resistance to the adopted technology. Such people issues can be dealt with by exploiting strong elements of AC such as a common communication language and effective communication channels in the SME.

Evaluation

The value of the implemented IT will be determined by the effects it has on the SME. Thus, the main question here is: Has the intended objective(s) of the adopted IT been realised? This is a key question which is addressed in this stage by carrying out an evaluation of the adopted technology. In this stage, the extent of usage of the new technology within the SME is also determined. The SME should allow a reasonable amount of time for the adopted technology to be well diffused into the organisation before starting the evaluation. Further, system users should have gained competency in the new technology before undertaking such an evaluation. The main idea here is to gain a realistic assessment on the value of the new technology to the SME.

A major challenge identified in the literature as well as in the field study is lack of knowledge by the SMEs on how to evaluate their IT; as **EdEmp4** puts it, "*We don't do the evaluation".* The literature too (see section 3.5 and Table 3-3) confirms this fact. It is clear that many SMEs rarely carry out this critical activity in the IT adoption process. For this purpose, SMEs could use DeLone and McLean's model (DeLone & McLean, 2003). This model is considered the most comprehensive information systems assessment instrument (see section 3.4.3 and Figure 3-7). The dimensions of this instrument should be modified to accommodate the unique context of individual SME, such as the individual characteristics of the system, the technology, and the size and structure of the organisation (DeLone & McLean, 2003).

Furthermore, at this stage, the continued relevance of the adopted technology should be determined in the light of the constantly changing business environments.

Again, as in the previous stages, in carrying out an evaluation process SMEs need to make use of elements of strong AC such as information analysis systems and information interpretation systems in order to understand the effects of the newly adopted technology. The external information discovery systems and external information capture systems can be used to understand the changes in the market to help the SME determine the continued relevance of the implemented technology in light of the developments taking place in the market. Furthermore, in incorporating elements of a good strategy, the reason(s) behind the evaluation process should be well understood, the evaluation processes need to be flexible to accommodate the unique context of the SME, and inputs from members of the SME should also be accommodated.

With such an IT adoption strategy SMEs can expect to reap rewards from their IT investment and stand to experience a boomerang effect in that their IT will improve and will sustain their strong AC (Roberts et al., 2012).

In line with the need to design a model that is easy to understand and implement, the subsection that follows presents the implementation guidelines for the proposed ITASIM.

6.3.5 Implementation Guidelines for ITASIM

As discussed in the preceding subsections, the proposed ITASIM is composed of three process areas: Absorptive Capacity (AC); Strategy Improvement and IT Adoption strategy. Since SMEs are constrained by limited resources and are likely to avoid anything that may appear complex, this study has provided guidelines that can be followed by SMEs to help them implement the ITASIM successfully.

There are a number of ways that activities within a given methodology can be presented. Here, the guidelines for ITASIM implementation follow a value chain approach. A value chain is a series of linked productive activities that a firm carries out in order to deliver a valuable product/service or fulfil a specified need (Dekker, 2003). As the chain of activities is carried out, some value is added to the product or

service. Therefore, the chain translates into a final product or service that has the sum of value from all the activities within the chain.

A value chain framework has therefore been used to categorise the value-adding activities to be adopted for the implementing ITASIM. The value chain framework used follows the traditional Systems Development Life Cycle (SDLC). This is premised on the fact that SDLC is largely used as a basis for any technology adoption methodology. Therefore, the adoption of SDLC will improve the understanding as well as the implementation of ITASIM within a conventionally acceptable approach.

The ITASIM implementation guidelines are composed of eight consecutive phases namely: the initiation phase, the analysis phase, the design phase, the development phase, the verification phase, the pilot phase, the roll-out phase and finally the evaluation phase. Figure 6-4 presents the proposed ITASIM implementation guidelines.

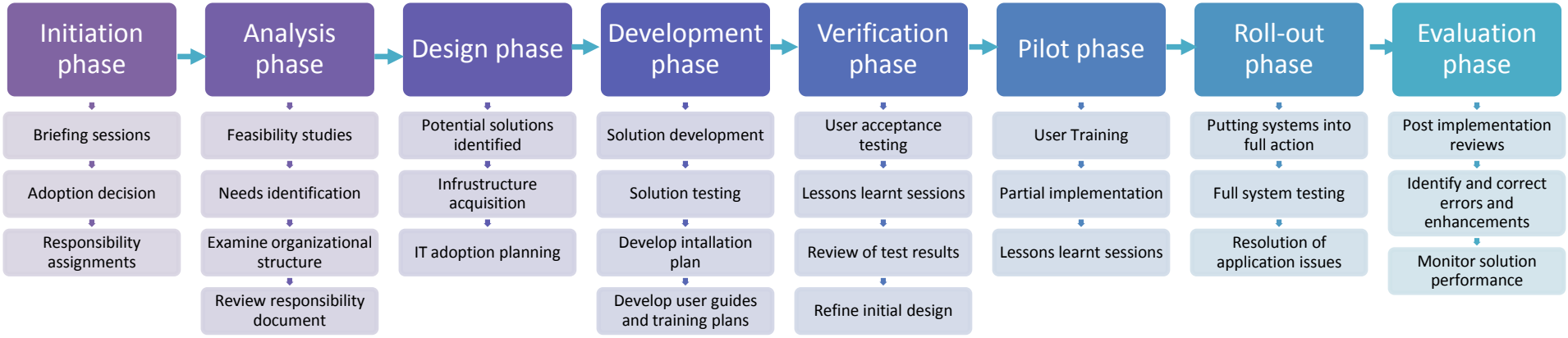


Figure 6-4: ITASIM implementation guideline value chain

Source: The researcher

The ITASIM implementation guideline framework with its eight successive phases, as shown in Figure 6-4, is presented in Table 6-4 by outlining each phase together with its corresponding ITASIM process area(s), the IT adoption activities involved, and consequently the deliverables.

Table 6-4: ITASIM implementation guideline value chain description

Phase	Applicable ITASIM process area(s)	IT adoption activities	IT adoption deliverables
Initiation: primary purpose is to provide guidelines to identify and understand the nature of the work required before adoption process kicks off.	All process areas	• Briefing sessions • Adoption decision • Responsibility assignments	• Buy in • Implementing adoption decision • Responsibility document
Analysis: the purpose is to understand the nature of the SME and its environment as well as the needs of the SME to be addressed by the new technology.	All process areas	• Feasibility studies • Needs identification • Examine organisational structure • Review responsibility document	• Adoption duration • Resources required identified • Needs assessment report • Expectation(s) defined • Business environment understood
Design: this specifies the technological solution(s) that has the potential to satisfy the identified need.	IT Adoption Strategy	• Potential solutions identified • Acquire infrastructure • IT adoption planning	• Choice of viable solution • Infrastructure acquisition • IT adoption schedule

Phase	Applicable ITASIM process area(s)	IT adoption activities	IT adoption deliverables
Development: the actual solution is constructed on the basis of the design specifications.	All process areas	• Solution development • Solution testing • Develop installation plan • Develop user guides and training plans	• User manuals • Running systems • Installation plans • User guide and training plans
Verification: involves testing procedures and appraisal of the designed solution.	All process areas	• User acceptance testing • Lessons learnt sessions • Review of test results • Refine initial design	• Users buy-in • Updated lessons learnt document • Updated design
Pilot: the purpose is to carry out trials on the system before a full implementation.	IT Adoption Strategy	• User training • Partial roll-out • Lessons learnt	• Lessons learnt document • Pilot impact analysis
Roll-out: this involves full implementation.	Absorptive Capacity and IT Adoption Strategy	• Putting system into full action • Full system testing • Resolution of application issues	• System production • Resolved system and people issues
Evaluation: this involves continuous evaluation to check if the entire processes are running according to plan.	All process areas	• Post-implementation reviews • Identify and correct errors and weaknesses • Monitor solution performance	• Upgrade recommendations • System operating as intended • More effective and efficient system

Source: The researcher

The word “system” or “solution”, as used in Table 6-4 and Figure 6-4, is not restricted to IT but also includes activities or actions designed to be executed within various ITASIM process areas.

6.4 Relevance of the Model to Kenyan SMEs

Findings from both the literature and the case studies presented in this work reveal that the current approach used by SMEs in Kenya when adopting IT needs improvement if SMEs are to experience positive results from their IT investments. Furthermore, SMEs lack a reference (that is uniquely tailored to them) they can use when it comes to IT adoption. The ITASIM can serve as a reference for SMEs’ IT adoption strategy in Kenya and other developing countries that operate under similar circumstances and environments.

The following subsection, by addressing the fourth research sub-question, presents the relevance of the proposed ITASIM for Kenyan SMEs.

6.4.1 Addressing the Fourth Research Sub-Question

This research sub-question purposes to present a plausible justification as to why the proposed ITASIM is a perfect fit when it comes to an IT adoption model that is valuable for Kenyan SMEs.

The sub-question was structured as follows:

Why is the proposed model beneficial for Kenyan SMEs?

The model is carefully crafted to be responsive to the problems and challenges encountered by Kenyan SMEs in their IT investments. Furthermore, the relevance of the ITASIM to Kenyan SMEs is premised on the fact that the model incorporates the rich features of strong AC as well as the elements of a good strategy. These two elements have been injected into the ITASIM. With these, the currently existing gaps in the manner with which Kenyan SMEs adopt IT are addressed.

A summary of the current challenges or gaps in IT adoption strategy, as employed by the SMEs in Kenya, is presented in Table 6-5 based on the findings of this study. The table also indicates how the proposed ITASIM addresses these gaps.

Table 6-5: Current gaps addressed by ITASIM

Current gap	How addressed by ITASIM
Of the eight SMEs that participated in the study only three exhibited strong AC (see section5.5). This means that the majority of the SMEs had low levels of AC.	In the first process area (Absorptive Capacity) the model's focus is on improving the levels of SMEs AC. The model ensures that SMEs have strong systems with regard to elements of AC, which will then be harnessed in the IT adoption process.
Proper IT adoption planning is rarely carried out. More often the adoption is done in an ad hoc manner (i.e. **NaEmp2**, *"the management hired two workers on contract since most of us we were having problems using this system"*).	The model provides a systematic approach to be followed by the SMEs. The IT Adoption Strategy process area of the ITASIM in its decision stage focuses on the need to carry out adequate planning. The analysis phase of the ITASIM implementation guideline value chain places emphasis on planning. Furthermore, the Strategy Improvement process area of the ITASIM ensures that elements of a good strategy are injected to ensure that such plans are as a result of inputs from various stakeholders.
Many SMEs are not familiar with contemporary IT adoption strategies (i.e. **EdEmp3**, *"we do not know of another way to do it [IT adoption process]"*).	Contemporary IT adoption strategies are premised on studies from companies in developed economies. The ITASIM offers SMEs a more contextualised IT adoption framework that is sensitive to their uniqueness. Therefore, these SMEs can easily identify with the ITASIM.
The SMEs rarely get involved in the determination of their current and future IT needs. The adoption is largely done because it is fashionable (i.e. **KiMgr1**, *"Everybody uses it*"; **MoEmp3**, "*Other businesses also use it*").	There is in-depth needs assessment within the ITASIM IT Adoption Strategy process area. This is reinforced by the Strategy Improvement process area that ensures that this activity exploits the rich elements of both AC and good strategy.

Current gap	How addressed by ITASIM
Stock taking of the performance of the implemented IT solution is rarely done (i.e. **EdEmp4**, "*We don't do the evaluation, we don't know how*").	ITASIM provides for the evaluation activities within its third process area (IT Adoption Strategies). Furthermore, the implementation guidelines of the model emphasise this. This will enable SMEs to determine the continued relevance of the adopted technology in the light of changes in the business environment.

The proposed model is, therefore, suitably designed to help Kenyan SMEs overcome the IT adoption challenges that were identified and discussed in this study.

The next subsection will collate the findings from the research sub-questions presented in the previous chapter as well as the one presented in this chapter. This is done to provide answers to the primary question of this study and is the object of the subsection that follows.

6.4.2 Addressing the Main Research Question

The main research question posed in this study was:

> **How can Kenyan SMEs be supported to improve their IT adoption strategies through a model on Absorptive Capacity?**

The objective of this primary research question was to establish the current challenges experienced by Kenyan SMEs in their IT adoption process with the aim of finding a pragmatic solution to these challenges through a model that exploits the rich elements of AC.

In order to effectively address this primary research question it was broken down into four research sub-questions whose findings are collectively used to address the main question. Table 6-6 presents the four research sub-questions together with a summary of the answers to the questions, the details and discussion of which were presented in detail in Chapter 5. Further, the table indicates how the sub-questions addressed the main question.

Table 6-6: Sub-questions informing the main question

Research sub-question	Answer summary	How it addresses the main question
1. How does AC contribute to organisational performance of SMEs in Kenya?	AC contributes to organisational performance in several ways such as allowing knowledge transfer and interaction between SMEs; enabling them to produce superior products/services; enabling them to determine their relevance in the market, amongst other things.	The answer to this question provided the required justification that AC has the potential of being exploited to help improve the IT adoption strategies used by SMEs in Kenya.
2. How effective are the IT adoption strategies employed by SMEs in Kenya?	The IT adoption strategies employed by SMEs were found to be generally inefficient and ineffective. The study illuminated the immaturity of the IT adoption process employed by SMEs in Kenya.	The answer to the question helped present the need to offer a solution to the SMEs in Kenya to help them improve their IT adoption processes which currently are characterised by several challenges.
3. How does AC influence the choice of IT adoption strategy?	SMEs with strong AC tend to have superior IT adoption strategies than do their counterparts who exhibited weak AC.	The findings with regard to this question helped to establish that there is a correlation between SMEs' AC and the manner with which they adopt IT.
4. Why is the proposed model beneficial for Kenyan SMEs?	There are several deficiencies in current IT adoption strategies. The model offers pragmatic solutions to these deficiencies.	The answer to this question helps highlight the relevance of the proposed model for Kenyan SMEs, as its design takes into account their unique context.

The findings of the literature review and with regard to the research sub-questions reveal that Kenyan SMEs can be supported to improve their IT adoption strategies through a model on AC, by supporting them to improve their AC and, consequently, offering them a process that they can use to exploit the rich aspects of the AC they have

built, as well as incorporating elements of a good strategy into the IT adoption process. Such a model will ensure that the current challenges faced by SMEs are well addressed. This is the sole purpose for the development of the ITASIM.

The model provides SMEs in Kenya with a practical IT adoption strategy process that is easy to implement if the implementation guidelines presented are followed. The model is designed to address the real challenges that SMEs in Kenya experience in their IT adoption process.

6.5 Conclusion

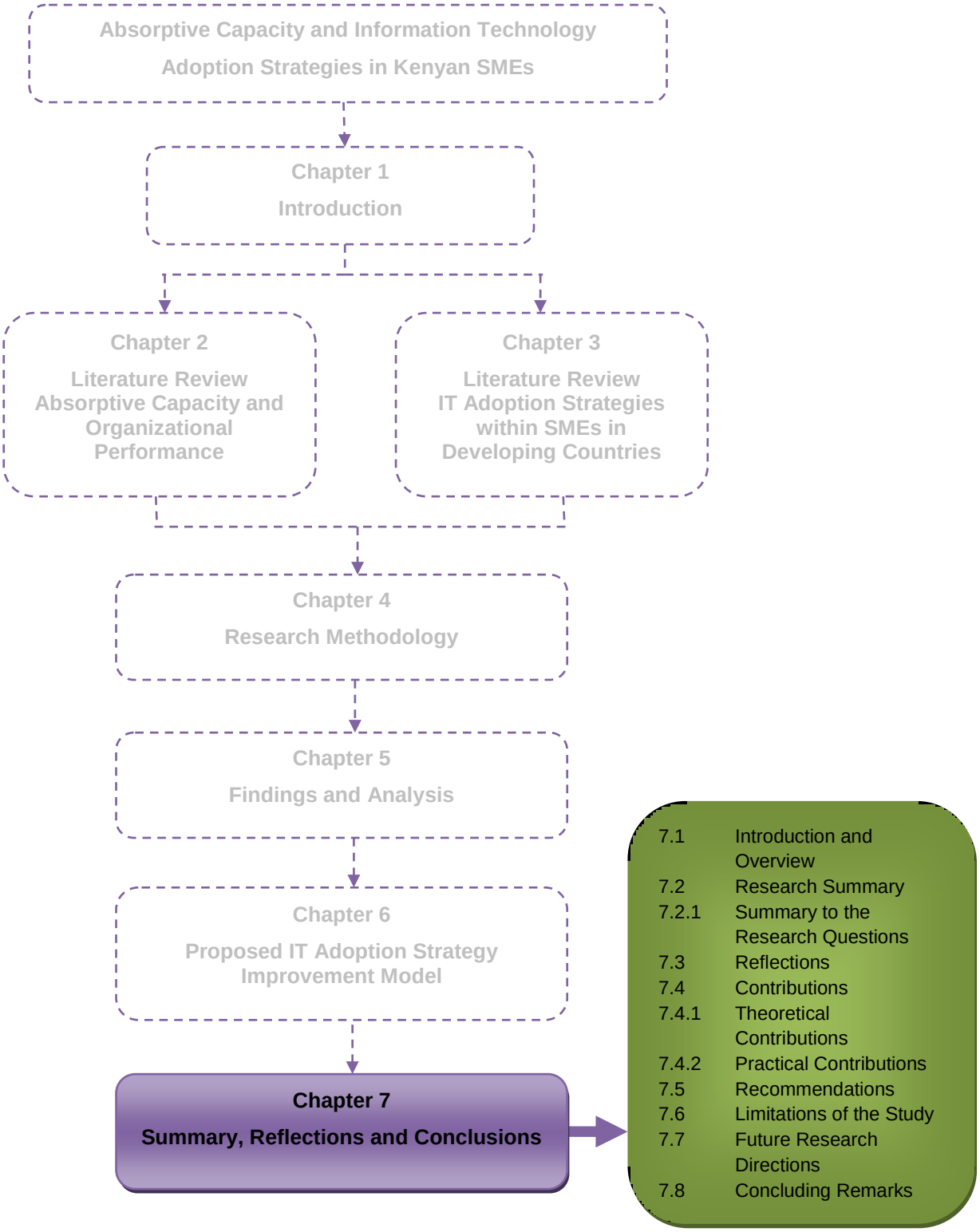
This chapter presented the proposed ITASIM. The model was designed through a series of reviews from stakeholders and experts which eventually resulted in the final model. The chapter further addressed the fourth research sub-question, which focused on the relevance of the proposed model for Kenyan SMEs. The answers to all the research sub-questions mentioned in the previous chapter and the question presented in this chapter were combined to inform the response to the main question of this study.

In terms of its design the model proposes, firstly, that the SME will need to improve their level of AC. This is the objective of the first process area of the model. Once the level of AC has been improved, this will need to be harnessed (developed systems of AC well understood) together with the elements of a good strategy. These are then infused into every stage of the IT adoption process in the third process area.

To ensure that the model is well implemented by the adopting SME, the chapter has also presented ITASIM implementation guidelines in the form of a value chain. This model, if well adopted by the SMEs, has the potential to provide much-needed impetus to the current IT adoption strategies employed by Kenyan SMEs which are characterised by deficiencies.

In the next chapter, the researcher's deliberation on the entire research journey in this study is presented as well as the study conclusions.

CHAPTER 7 – DIAGRAMATIC OVERVIEW



CHAPTER 7

SUMMARY, REFLECTIONS AND CONCLUSIONS

7.1 Introduction and Overview

The purpose of this study was to investigate the way Kenyan SMEs can be supported to improve their IT adoption strategies through a model on Absorptive Capacity (AC). To effectively address this objective, four research sub-questions were used. An elaborate presentation of these was the primary objective of Chapters 5 and 6, with the latter chapter presenting the proposed Information Technology Adoption Strategy Improvement Model (ITASIM). This model, as presented, is carefully designed to address the present flaws in IT adoption strategies employed by SMEs in Kenya.

This chapter presents a summary of this research by providing concluding discussions on the research questions posed. The researcher's reflections on this research journey are then presented. The chapter also identifies the contributions made by this study and advances a set of recommendations based on the study findings. The study limitations and areas for further research are highlighted and consequently concluding remarks on the study are made.

7.2 Research Summary

This study has been structured into seven chapters. In the first chapter, an introductory presentation was made on how this study fits into the broader research agenda of IT adoption by SMEs. To this end, this study now serves as a proof of existence of an IT adoption strategy model within the broader research effort of IT adoption strategies. The research problem was also stated in this chapter. A review of the related literature was presented in Chapters 2 and 3. These two chapters consolidated previous studies within the focus of study thereby illuminating the gaps and this led to the formulation of the research problem. The philosophical assumptions as well as the research strategy adopted in this thesis were discussed in Chapter 4. The results of the case studies were presented in Chapter 5, consequently setting the stage for the presentation of the

proposed ITASIM in Chapter 6. This current chapter presents the overall conclusions to this study.

There is a need to look back into the extent to which this study has achieved the threshold to be considered scientific with regard to the way in which evidence was gathered to address the study objectives. Klein and Myers (1999) have proposed a set of seven principles that can be used to effectively evaluate interpretive studies. Table 7-1 summarises this study evaluation based on these seven principles.

Table 7-1: Evaluation of a research study

Evaluation Criteria	How achieved in the study?
Fundamental principle of the hermeneutic circle: Did the study understand the complex whole by understanding its parts and their interrelationships?	Each individual SME was studied as an independent case first before the cross-case analysis was carried out in order to understand the whole bigger picture (see Chapters 5 and 6).
Principle of contextualisation: Did the researcher seek an understanding of the phenomenon in its context?	The study background was highlighted by looking at the Kenyan context (see section 3.6.1). Furthermore, the demographics of the participants were presented and used in understanding the findings (see Table 5-6).
Principle of interaction between the researchers and the subjects: Was there social interaction between the researcher and the study participants?	The researcher was an active participant in the study by engaging directly with the research participants by administering the questionnaires and conducting the interviews, as well as being involved in observation.
Principle of abstraction and generalisation: Are the research findings generalised to other contexts?	The research findings are mapped to the theoretical concepts of Absorptive Capacity and IT adoption strategies (see Chapters 5 and 6).
Principle of dialogical reasoning: Is the interpretation of the data informed by the literature?	The interpretation of data was done with regard to the literature presented in this study.
Principle of multiple interpretations: Were different sources of data used to make multiple viewpoints available?	Multiple viewpoints were sourced from various sources namely, SMEs owners/managers, employees within the SMEs, as well as experts both from Kenya and South Africa.

Evaluation Criteria	How achieved in the study?
Principle of suspicion: Was the researcher sensitive to potential biases or distortions in the data obtained from study participants?	Through observation, the researcher got a first-hand feel of events within the SMEs thereby checking for error or distortions in actual events. Furthermore, during interview sessions the respondents were asked to clarify facts obtained from the questionnaire that appeared inconsistent or unclear.

In view of the study evaluation as tabulated in Table 7-1, it is reasonable to believe that the study has sufficiently met the threshold to be considered methodologically and scientifically sound.

The next subsection gives a concluding summary of the four research sub-questions as well as the primary research question.

7.2.1 Summary to the Research Questions

Several insights into SMEs' AC and their IT adoption strategies have been revealed in this study. These insights are now summarised in conclusion and relative to the research questions posed in this study.

Research Sub-Question 1: How does the Absorptive Capacity contribute to the organisational performance of SMEs in Kenya?

In order to survive in ever-competitive markets SMEs need to improve their competitiveness. There has been a growing shift to knowledge management and use as a way for businesses to stay competitive. This research sub-question sought to establish how AC contributes to the organisational performance of SMEs.

Of the eight SMEs that participated in this study, only three exhibited high levels of AC while the remaining five had low levels of AC (see section 5.5). Of the three that exhibited high levels of AC they did indicate that AC had a direct bearing on their organisational performance and that it did positively influence such performance in the following ways (see section 5.5.1.5): acquisition of valuable information; collaboration

with players in the market; more informed decisions; strategically positioning themselves; and being responsive to market dynamics among other things.

SMEs have always been characterised by limited resources thereby often being faced by numerous challenges, as can be evidenced from several findings in the literature (see Chapter 2). The meaning of these findings for research sub-question one is that, firstly, the level of AC in many SMEs in Kenya is low. This can be explained by the fact that many SMEs lack adequate resources to improve their AC. Furthermore, the majority of SMEs are owned and managed by the same individuals who often prefer to focus their limited resources on their core activities. Secondly, the findings reveal that AC has the potential to be exploited by SMEs to help them improve organisational performance.

To be able to take advantage of the emerging opportunities, it is imperative that SMEs in Kenya strive to put structures in place that will enable them to build their AC as a tool to empower them. It is these findings that have helped affirm the relevance of AC to SMEs in Kenya and their potential in improving the standing of these SMEs. This grounding affirms that a model could be developed that exploits the rich elements of AC to help SMEs improve their IT adoption strategies.

Research Sub-Question 2: How effective are the IT adoption strategies employed by SMEs in Kenya?

Having determined the relevance of AC in improving the organisational performance of SMEs from the findings to the first research sub-question, this second research sub-question was designed to evaluate the effectiveness of the current IT adoption strategies employed by SMEs in Kenya. The main objective was to determine whether the current strategies needed to be improved or not.

From the findings it was clear that all SMEs that participated in the study had not attained maturity in their IT adoption process. The strategies employed were flawed in one way or another, thus the finding reinforcing the work of other researchers that found that many SMEs are challenged with their IT adoption practices (see section 3.5). The study findings reveal that the SMEs were not clear on why or how they needed to adopt

IT. Furthermore, a number of SMEs were not fully aware of the opportunities that IT can present to them with.

Because of this, many SMEs in Kenya, as revealed in this study, have an IT adoption process that is characterised by a lack of proper planning. This can help explain the large degree of immaturity in their IT adoption process.

The findings present a clear need for SMEs to be empowered to improve their IT adoption process. To this end, this study has proposed the ITASIM that can be adopted by SMEs in Kenya to help improve the likelihood of success in their IT investments.

Research Sub-Question 3: How does Absorptive Capacity influence the choice of IT adoption strategy?

In comparing the IT adoption process of the two categories of SMEs studied (those that exhibited strong AC and those that exhibited weak AC), it was apparent that the maturity of the IT adoption process was wanting in all cases. Nevertheless, there was sufficient evidence to provide a reasoned argument that the SMEs that exhibited strong AC had better IT adoption strategies than did their counterparts with low levels of AC. This affirms Harrington and Guimaraes's (2005) findings that AC has a clear role to play in the success of IT investments.

Therefore, there is a clear correlation between SMEs' AC and their choice of IT adoption strategies. That is, the greater the level of AC the better the choice of adoption strategy. It is therefore necessary for SMEs in Kenya to establish routines and processes for acquiring, absorbing, processing and utilising knowledge in order to realise better and more meaningful choices with regard to their IT adoption strategies.

Research Sub-Question 4: Why is the proposed model beneficial for Kenyan SMEs?

The proposed ITASIM has been carefully designed to help address the perennial problems that SMEs in Kenyan face with their IT adoption processes. A number of studies have come to a similar conclusion, for example, one study showed that AC has the potential to be exploited to help organisations stay relevant and competitive. The

model draws on AC by providing avenues for injecting the rich elements of both AC and good strategy into an SME's IT adoption process. In this way SMEs are able to adopt IT effectively, thereby improving the likelihood of the adopted technology impacting positively on their enterprises.

Models, frameworks, standards and methodology that have been developed from research conducted in developed countries more often than not misses the contextual flavour prevailing in developing countries like Kenya (Schwalbe, 2007). Because of this, they are not readily applicable in a developing country context. The proposed ITASIM has been developed to be contextually sensitive to the prevailing environments within which SMEs in Kenya operate. The SMEs in Kenya can therefore readily identify with the ITASIM.

Because of the fact that many SMEs in developing economies like Kenya are lacking in skills and resources, there would be a natural tendency to reject any model that seems complicated and has the likelihood to consume meagre resources. Therefore, through feedback from expert reviews, the proposed ITASIM has been simplified for easier understanding and adoption. The model is accompanied by implementation guidelines to further simplify the model and ensure its effective implementation. Furthermore, the model proposes a more structured way for SMEs to adopt IT. These measures provide the assurance that, when adopting the model, Kenyan SMEs will realise improved IT adoption strategies that will translate into a positive impact being made by their IT investments.

Primary Research Question: How can Kenyan SMEs be supported to improve their IT adoption strategies through a model on Absorptive Capacity?

Kenyan SMEs should build their AC through a continuous and systematic pattern of routines or actions that would translate into positive impacts being made on the SMEs' organisational performance. The SMEs need to move from sporadic unintentional processes or actions to deliberate ones geared towards building their AC.

Having established a strong AC, SMEs will need to harness the elements of both AC and good strategy and incorporate these into their IT adoption processes. These activities can be effectively realised through the adoption of the proposed ITASIM.

The ITASIM proposed in this study is an IT adoption model that attempts to address the current shortcomings of the current IT adoption strategies employed by SMEs in Kenya and other developing countries that operate in similar environments and under similar circumstances. The model enables the adopting SMEs to improve their AC and exploit this to improve their IT adoption strategies.

7.3 Reflections

Prior to this study an initial study leading to a dissertation for a master's degree was conducted during 2010 and 2011. The study assessed the quality of Information Systems (IS) used in SMEs in Eldoret town in Kenya. Although the focus of this study was on IS quality its by-product provided a revelation on just how the processes the SMEs used to adopt their IS was ineffective (Ndiege et al., 2012). The revelation was instrumental in triggering the quest to find out just how these SMEs could be supported to improve their IT adoption strategies – this was the primary objective of this study.

With the realisation that majority of the SMEs in developing countries like Kenya are often faced with IT adoption challenges, this research was undertaken in the interests of such SMEs. The main objective of this was to try and find a possible pragmatic solution to help these SMEs improve the likelihood of success in their IT adoption efforts. Consequently, the ITASIM was developed to directly address this challenge.

In the course of any research study there are a number of common challenges that researchers face. However, researchers will generally face different problems based on the prevailing political system, educational level and the surrounding culture, among others things.

A number of problems were faced when collecting the data and information needed for this study in all the four counties (Eldoret, Kisumu, Nairobi and Mombasa). It is highly probable that these usually operate in similar environmental and political settings.

Kenya has a highly diverse culture and conducting research in such a complex cultural environment where the value of research is rarely appreciated is often very challenging and a lot of persuasion had to be done to convince the participants to fully engage in the study.

Another major challenge was attributed to the deficiency of research and lack of knowledge, as well as lack of awareness in the study domain. These resulted in challenges in terms of the prospective research participants understanding the nature of the research. On at least two occasions SMEs that had been approached to participate declined. However, this did not interfere with the study outcome but merely prolonged the process of participant identification, which consequently took longer than was originally anticipated by the researcher.

The following section presents the contributions that have been made as a result of this study.

7.4 Contributions

Two types of contribution were made by this study to the current body of knowledge, namely, theoretical and practical contributions.

7.4.1 Theoretical Contributions

This study expands the domain of theories related to SMEs, Information Technology/Systems, Absorptive Capacity, and IT adoption. The study has made theoretical contributions in various publications (see pg. iii). These emanated from this study.

This research distinguishes itself from past studies is several respects. Within the current literature, there is little attention on IT adoption by SMEs in Kenya. Furthermore, there is none that provides a focus on establishing the link between AC and IT adoption strategies within the context of SMEs. This study therefore contributes to this thin body of knowledge.

Although there is still a lack of a commonly agreed measure to adequately assess an organisation's AC and although research and development (R&D) has been widely used

as surrogate measure of AC, this study deviates and joins the like of Lane et al. (2006), Spithoven et al. (2011) and McAdam, Anothony, Kumar and Shirley (2011), amongst others, in operationalising AC beyond R&D. The study uses the scale proposed by Jimenez-Barrionuevo et al. (2011). As a result this study proves the applicability of this scale to the measurement of AC in SMEs.

Based on the preceding presentation, this study can be said to have provided a reasonable contribution to theory.

This study has made some practical contributions and these are discussed in the next subsection.

7.4.2 Practical Contributions

As was revealed in the literature review (see section 3.5), one of the major contributing factors to SMEs' failure in their IT adoption process is the lack of clear guidelines for their IT adoption process. Accordingly, one of the main objectives for this study was to develop a model that SMEs can use to improve their IT adoption strategies.

This study has proposed a model (ITASIM) that, if effectively adopted, has the potential to help SMEs overcome some of the perennial challenges that have characterised their IT adoption strategies. The model exploits the rich elements of AC together with those of a good strategy and carefully injects these into each phase of the IT adoption process, thereby assuring that the process, if effectively carried out, will significantly improve the IT adoption strategies of SMEs. The model first focuses on the improvement of the individual dimensions of AC (acquisition, assimilation, transformation and exploitation) in the SMEs. This ensures that SMEs are able to build on this critical capacity that has been found to be vital for organisational survival.

This study also offers implementation guidelines for the proposed ITASIM. The guidelines have been designed to follow the conventional Systems Development Life Cycle (SDLC). The guidelines contain activities together with their deliverables that need to be realised to ensure the effective implementation of the ITASIM.

The following subsection presents some recommendations that have been drawn from the outcome of this study.

7.5 Recommendations

There are a number of recommendations that can be made from the findings of this study. The recommendations presented here maybe as well useful to other developing countries that operate in similar contextual settings as Kenya.

Firstly, the findings from this study revealed that many SMEs in Kenya have low levels of AC. Accordingly, SMEs need to be encouraged to build and sustain their AC as this will have a direct positive impact on their organisational performance and consequently their competitiveness.

Secondly, the results of this study reveal that many SMEs in Kenya do not strategically invest in IT. It is imperative, therefore, that the management of SMEs are not just aware of factors that affect and influence their IT adoption; it is also important that they have knowledge of the relevance and the likely impact of such in investments for their SMEs. These will give them an integrated perspective when making strategic planning decisions for their IT investments.

Thirdly, many SMEs in Kenya rarely engage with other entities. Generally, they work in isolation oblivious of the dynamics in their surrounding environments. Cooperation between SMEs and other entities like research centres, universities, suppliers, customers and even competitors should be encouraged as this will directly help build their ACs.

Finally, the maturity of the IT adoption strategies employed by SMEs in Kenya was relatively low in all the SMEs studied. Many SMEs in Kenya appear not to appreciate the relevance of a well-planned IT adoption process. This low awareness should be addressed by the SMEs. One way of addressing such deficiency is through the adoption of contextually relevant models or frameworks that have been carefully designed to be useful and relevant to the SMEs. The ITASIM is one such model that maybe adopted by SMEs in Kenya to help improve their IT adoption process.

Any research study will usually have certain limitations. This study inevitably has certain limitations which are presented in the subsection that follows.

7.6 Limitations of the Study

With the paucity of empirical studies on AC and IT adoption strategies within SMEs in developing countries, this study has contributed to the understanding of AC and how this influences the IT adoption strategies within the context of SMEs in developing countries and more specifically Kenya. The study did illuminate the levels of AC within the SMEs and the current IT adoption strategies employed by these enterprises in Kenya. Consequently, a model has been proposed that can be employed by the SMEs to help improve their AC and IT adoption strategies. Despite these contributions, the limitations of this study must be acknowledged.

Although the SMEs that participated in the study to a large extent mirror the total population, the study was realised using eight SMEs distributed within the four major counties in Kenya, namely, Eldoret, Kisumu, Nairobi and Mombasa. As a result, one of the limitations of this study is the small scope of the regions within which the research was developed as well as the fact that it was restricted to two SMEs per county. Because of these, there is that possibility that the study findings may not exhaustively represent the population; hence, the ability to generalise the study findings beyond the study sample may be limited. However, the fact that there are similarities in the results of this study and others based on the same study area does in fact strengthen the credibility of this study.

This study has adopted a qualitative approach as this was found to be most suitable for addressing the study objectives. All the study findings were based on information obtained from the questionnaires (open-ended questions), interviews, observations, document analysis, still photos and expert reviews.

Despite these limitations the study processes were meticulously conducted as was depicted in Chapters 4 and 5. Because of this, the study conclusions are plausible and defensible.

For those keen on furthering the research in this area, paths for potential future lines of research are presented in the next subsection.

7.7 Future Research Directions

The findings of this study have opened up a number of areas that could potentially be explored to extend the current research.

Although this study focused on a cross-industry sample involving SMEs from different industries, a study with a focus on a single industry could draw interesting results. This is because such research would offer greater vigour to the study and as a result have more practical industry-specific implications.

In view of the current thesis of this study, another possible extension to this work would be to employ different instruments and models for assessing AC and IT adoption strategies within SMEs. This could produce interesting results that could then be compared or contrasted to this study. Developing a matrix to evaluate AC maturity may also be a possibility for further studies.

Furthermore, this study adopted a qualitative approach. Another option for future research is to carry out a similar study on a larger sample using a quantitative approach involving statistical tests such as those found in the Statistical package for Social Sciences (SPSS). A mixed methodological approach may also suffice. This would help address issues related to generalisation.

Despite the fact that the ITASIM has been evaluated by experts to determine its relevance for SMEs, the model has not yet been tested in an operational setting. Therefore, studies need to be carried out to test its applicability in an operational setting. Similar research could also focus on testing and challenging the concepts outlined in the model as well as monitoring and evaluating the ongoing efficacy of the model.

It is clear from this study that research on AC and IT adoption on SMEs in Kenya is still in its infancy stage. As a result, there are several avenues for future research. Other researchers keen on exploring the topic further can therefore use this study as an opening, be it in Kenya or in other contexts.

7.8 Concluding Remarks

Although technology was introduced decades ago, and despite the rapid technological advancements and the benefits that are associated with technological investments, many SMEs in Kenya continue to struggle with their IT adoption strategies. The adoption of IT in SMEs in Kenya appears to be sporadic accompanied by little or no strategic planning. Moreover, many SMEs have overlooked the relevance of IT and the contribution it can make to improve their performance.

A number of studies have underscored the significance of AC to organisations. This study has demonstrated the relevance of AC to Kenyan SMEs and has also revealed the existence of low levels of AC within the majority of SMEs. Furthermore, the study has illuminated the state of IT adoption strategies employed by SMEs in Kenya which is evidently wanting and could do with some improvements.

This study has enriched the literature on SMEs by contributing to a deeper understanding on AC and IT adoption processes within SMEs in Kenya. The study evaluated both AC and IT adoption processes in the target SMEs. The outcome is a model (ITASIM) that has been proposed to help SMEs improve their IT adoption strategies. The proposed model should help SMEs build their AC and uses it alongside the elements of a good strategy to help them improve their IT adoption processes.

It is clear that SMEs in Kenya are faced with problems related to their AC and IT adoption strategies. These challenges make it difficult for them to fully benefit from their IT investments. It is therefore important that the SMEs make pragmatic attempts to address the issues identified in this study.

It is the researcher's belief that this work by itself stands as a doctoral thesis. The proposed ITASIM has been presented and discussed in detail. However, more work could still be done on it and its practical applicability could very well be a project on its own, an idea that the researcher is keen to pursue in post-doctoral research. This notwithstanding, the model (ITASIM) as it is currently constituted in this study will be useful for SMEs, policy makers and researchers.

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APPENDICES

APPENDIX A: RESEARCH PERMIT

REPUBLIC OF KENYA

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Telephone: 254-020-2213471, 2241349
254-020-310571, 2213123, 2219420
Fax: 254-020-318245, 318249
When replying please quote
secretary@ncst.go.ke

P.O. Box 30623-00100
NAIROBI-KENYA
Website: www.ncst.go.ke

Our Ref: **NCST/RCD/13/012/35**

Date: **11th June 2012**

Joshua Rumo Arongo Ndiege
University of Fort Hare
South Africa.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Absorptive Capacity and Information Technology Adoption Strategies in Kenyan SMEs,"*** I am pleased to inform you that you have been authorized to undertake research in **Nairobi, Mombasa, Kisumu, Eldoret East and West Districts** for a period ending **31st December, *2012*.**

You are advised to report to **the District Commissioners and the District Education Officers, Nairobi, Mombasa, Kisumu, Eldoret East and Eldoret West Districts** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR. M. K. RUGUTT, ~~PhD HSC~~.
DEPUTY COUNCIL SECRETARY

Copy to:

The District Commissioners
The District Education Officers
Nairobi District
Kisumu District

"The National Council for Science and Technology is Committed to the Promotion of Science and Technology for National Development."

APPENDIX B: INFORMATION LEAFLET AND INFORMED CONSENT FORM

INFORMATION LEAFLET AND INFORMED CONSENT

PROJECT TITLE: ABSORPTIVE CAPACITY AND INFORMATION TECHNOLOGY ADOPTION STRATEGIES IN KENYAN SMEs

Primary Investigator: Mr Joshua RA Ndiege, BCom, Me-Com., MCom (IS)
Mob.: +254-720727594, E-mail: joshuarumo@yahoo.com

Supervisor: Prof. Marlien E Herselman, Email: mherselman@csir.co.za
Co-supervisor: Prof. Stephen V Flowerday, Email: sflowerday@ufh.ac.za

Dear Research Participant,

I am asking for your voluntary participation in a research study leading to the fulfilment of requirements for my PhD in Information Systems Studies. This information leaflet is to help you fully understand what is involved in the study and, thereafter, decide if you would consider participating in it.

Purpose of Research:

The purpose of this research is to conduct an evaluation of Absorptive Capacity within small and medium businesses in the four major towns of Kenya, namely, Nairobi, Mombasa, Kisumu and Eldoret. The study also seeks to understand the strategy employed by these businesses in adopting Information Technology (IT). The primary objective of this study is to propose an IT Adoption Strategy Improvement Model (ITASIM) that is based on Absorptive Capacity. This model will help Kenyan SMEs improve their IT adoption strategy by exploiting their Absorptive Capacity.

Description of the Research:

- This research will use multiple case studies of selected small and medium business that are using IT in their operations.
- This research will endeavour to determine:
    - How Absorptive Capacity contributes to organizational performance of SMEs in Kenya
    - The effectiveness of the IT adoption strategies employed by the SMEs in Kenya
    - How the Absorptive Capacity influence the choice of IT adoption strategy
    - Why the proposed ITASIM is beneficial to Kenyan SMEs

What you will be required to do if you accept to participate:

Should you decide to participate in this study you will be required to:

- Sign the informed consent form.
- Complete the questionnaire. The questions will be about how the organization identifies useful external information, how this flows into and within the organization, and how this knowledge is exploited to help improve performance of the organization. There will also be questions regarding the manner in which the IT is adopted. It should take about 30 minutes to respond to all the questions. Because of the limited time frame for this study, the researcher will greatly appreciate if you could return the completed questionnaire within a period of two weeks.
- Attend an interview session with the researcher at your premises to answer some questions after the results of the questionnaire are evaluated. The session will be concluded within 30 minutes.
- Where possible show the researcher some documents like reports, memos, meeting minutes, brochures that may help us further understand the subject matter of the study.

Potential Harm, Injuries, Discomforts or Inconvenience:

There is no known harm associated with participation in this study.

Potential Benefits:

The benefit of participating in this study is:

- You will make contribution towards establishing a model for improving the IT adoption strategy used within small and medium businesses.
- You will, however, not be financially compensated for participating in this study.
- Upon request we will be happy to avail to you a mini report about how your organization's Absorptive Capacity is contributing to the performance of your firm as well as the effectiveness of your organization's current IT adoption strategy. We will also show you how you can improve your organization's IT adoption strategy through our proposed ITASIM.

Participation:

Your participation in this study is completely voluntary. Consequently, you may withdraw your consent or participation in this study without providing reasons for such a decision, and there will be no negative consequences.

Confidentiality:

Your anonymity together with that of your organization will be maintained during data analysis and publication or presentation of the results, and no information that discloses your identity will be released or published. The following will be observed to ensure confidentiality.

- You will be assigned a number/code as names will not be recorded.
- The researcher will save the data file by your number/code, **not** by name.
- Only the researcher and the supervisors will view collected data in detail.
- All the data files will be stored in a secured location, accessed only by authorized researchers.
- Any identifying information from the documents provided will be expunged to guarantee anonymity.

Approval of the Study:

The Faculty Research and Higher Degrees Committee of University of Fort Hare has approved this study and its procedures. Further, a formal authorization to conduct the study was provided by the Ministry of Higher Education, Science and Technology and the National Council for Science and Technology in Kenya.

If you have any questions about this study, you should feel free to contact them now or any time throughout the study. You may do so through the contacts of the study supervisors given at the beginning of this information leaflet or through the National Council for Science and Technology P.O. Box 30623 – 00100, Nairobi.

INFORMED CONSENT

By signing this form I agree that:

- I understand the nature, conduct, benefits and risks of this study.
- All my questions were answered.
- I have the right not to participate and the right to withdraw at any time.
- I may refuse to participate or withdraw without consequences.
- I am free now, and in the future to ask any questions about the study.
- I have been informed that my personal information will be kept confidential.

I now of my own free will agree to participate in the study.

Participant's name_____ Signature_____

Date _____

Researcher's name_____ Signature_____

Date_____

APPENDIX C: QUESTIONNAIRE

Questionnaire for SMEs

A. Manager and the SME Profile – To be filled by SME Manager

1. What formal training do you have? ……..(education)
2. Does your training relate to your business? ……..
3. For how many years has your business been in operation? ……..(number of years)
4. How long have you been working in this organisation? .....(number of years)
5. How many people does your business employ?.....(number of employees)
6. What is the nature of your business?..... ……
7. How many departments (sections) are there in your organisation? ……..
8. What Information Technology/Technologies is being used by the SME .....

   .....

   .....
9. How many departments make use the adopted technology/technologies? .....

B. Employee profile – to be completed by employee

1. What formal training do you have? ……..(education)

2. Does your training relate to your business? ……..

3. How long have you been working in this organisation? .....(number of years)

C. Absorptive Capacity

The following questions are about how this business relates to other organisations/businesses

Acquisition

1. **(Interaction):** Does the organisation have any relationships with other businesses and how do you interact with each other?

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2. **(Trust, Respect, Friendship and Reciprocity):** If so how do you relate to them with regard to trust, respect, friendship and mutual benefit?

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3. How do issues raised in questions 1 (Interaction) and 2 (trust, respect, friendship and reciprocity) help to improve the performance of your business?

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Assimilation

4. **(Common Language):** Do you fully understand each other when you interact with the other business(es)?

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5. **(Complementary):** How do you depend on each other? (your business and other businesses)

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6. **(Similarity):** What is the nature of the business of the other organisation(s) you relate to? Do you have similar resources, types of customer?

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7. **(Compatibility):** Do you both have similar activities, practices and operations?

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8. How do issues raised in questions 4 (Common Language), 5 (Complementary), 6 (Similarity) and 7 (Compatibility) help in improving the performance of your business?

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The following questions focus on flow of information within your business and its utilisation

Transformation

9. **(Communication):** Do you communicate freely about your work within the organisation?

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10. **(Meetings):** Are meetings organised within departments and the organisation to discuss business matters?

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11. **(Documents):** Do departments publish some kinds of document occasionally regarding what takes place within it? (if yes, could you provide us with a sample?)

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12. **(Transmission):** Are important data transmitted regularly to all departments?

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13. **(Time):** When something important occurs, how long does it take to have all departments informed?

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14. **(Flows):** What structures are in place to ensure information flows within the organisation and is it shared between different departments?

    ……

    ……

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15. How do issues raised in questions 9 (Communication), 10 (Meetings), 11 (Documents), 12 (Transmission), 13 (Time) and 14 (Flows) help in improving the performance of your business?

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Exploitation

16. **(Responsibility):** Is there a clear division of functions and responsibilities regarding the use of information received from outside the organisation?

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17. **(Application):** How does the organisation use the information received from outside the organisation?

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18. How do issues raised in questions 16 (Responsibility) and 17 (Application) help in improving the performance of your business?

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D. IT Adoption Strategy

The following questions are about how your organisation adopts Information Technology (IT)

Decision Stage

19. How did the organisation determine whether or not it needed IT?

20. Was the organisation aware of other available IT solutions?

21. Why did the organisation decide to acquire/purchase this particular solution(s)?

22. Was the organisation prepared to use the IT solution (like availability of skilled staff, availability of equipment necessary to run the IT solution)?

23. Was advice/opinion sought before the IT solution(s) was acquired/purchased? If yes from where was the advice/opinion sought?

Implementation Stage

24. Was training conducted before you started using the IT solution(s)? Who conducted the training and how was it done?

25. How was the IT solution(s) deployed/setup?

Evaluation Stage

26. Is an evaluation/assessment done to determine how the IT solution(s) is impacting on the business? If yes how is this evaluation/assessment done?

27. How does the organisation ensure that the IT solution(s) remains relevant as the business needs change?

28. Do you consider the IT adoption a success? Why?

Absorptive Capacity and IT adoption strategy

29. How did your ability to identify and make use of external information affect the manner in which you carried out the three stages mentioned above [Decision, Implementation and Evaluation]?

APPENDIX D: INTERVIEW GUIDE

Interview Guide for SMEs Management and Employee

E. Absorptive Capacity and Organisational Performance

The following questions are about how your organisation's Absorptive Capacity contributes to its performance.

1. How can you tell that particular information the organisation receives from outside is important to the business?
- *Prompt: From where do you usually get such information?*

2. Can you tell me how the organisation's ability to identify and make use of external information has helped your business?
- *Prompt: Could you share specific examples?*

3. What do you think would go wrong in the organisation if it never identifies or makes use of external information?

4. Do you think your organisation is always keen to identify and make use of external information to improve its business?
- *Prompt: If yes, what can show that the organisation is indeed keen on identifying and utilising external information?*
-

F. IT Adoption Strategy

The following questions are about how your organisation adopts Information Technology (IT) and how effective the adopted strategy is.

5. Your organisation uses [.....] Information Technology/Technologies. Could you tell me how the technology/technologies was/were acquired?
- *Prompt: Elaborate on the process that was followed.*

6. Are you satisfied with the adopted Information Technology/Technologies?
- *Prompt: [If No] Why?*

7. Can you tell me how the organisation's ability to identify and make use of external information influenced the manner in which you adopted the technology?

8. Is there anything else you would like to share concerning your business and/or this interview?

APPENDIX E: ITASIM EVALUATION SHEET

IT Adoption Strategy Improvement Model (ITASIM) Evaluation Sheet

Primary Investigator: Mr Joshua Rumo A. Ndiege, PhD Student UFH

Study Supervisors: Prof. Herselman Marlien and Prof. Stephen Flowerday

Dear Respondent,

You have been selected as an expert to help with the evaluation of the relevance and validity of the ITASIM. This model has been designed to help Small and Medium Enterprises (SMEs) in Kenya and other developing countries that operate under similar environments improve their IT adoption strategies.

The model is a product of my doctoral thesis in Information Systems whose primary objective is to find out how Kenyan SMEs can be supported to improve their IT adoption strategies through a model on Absorptive Capacity. Absorptive Capacity can be defined as the ability of the organisation to identify relevant external information, assimilate it and exploit it to their advantage.

The main reason for carrying out this evaluation and validation exercise is to determine the value and relevance of the model to the SMEs and also to get your valuable feedback to help refine and improve the model.

Kindly provide your assessment of the model by addressing the following questions:

a) Simplicity

1. Is the model simple enough to be readily understood by the SMEs? [briefly provide justification for your answer]

2. Is the implementation guide simple enough to be readily understood by the SMEs? [briefly provide justification for your answer]

Relevance

3. Does the model have the potential of assisting the SMEs improve their IT adoption strategies? [briefly provide justification for your answer]

4. Is the implementation guideline sensible in relation to helping SMEs effectively implement the proposed model? [briefly provide justification for your answer]

b) Strengths and Weaknesses

5. What would you consider to be the strengths of the model and its implementation guideline?

6. What would you consider to be weaknesses of the model and its implementation guideline?

c) Additional Research

7. What additional research should be undertaken on this model?

d) Additional Comments