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Manyama, Alson

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The impact of ICT adoption on business performance among SMEs in South Africa

Alson Manyama

Student number 562593

Dissertation

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School of Economics and Business Sciences

at the

Wits Business School

Supervisor: Doctor Jabulile Msimango-Galawe

Johannesburg (June 2023)

Declaration

I, Alson Manyama, at this moment declare that, except where appropriate acknowledgement is made to authors whose studies were cited, this dissertation, entitled: "The impact of ICT adoption on business performance among SMEs in South Africa*,* submitted in fulfilment of the requirements for the degree of Master of management in digital business at the University of the Witwatersrand, Johannesburg, is entirely my independent work. This dissertation has not been submitted before for any degree or professional qualification in this or another university.

A. Manyama

Dedication

This paper is dedicated to my late wife who passed on during my study, she has been a very supporting spouse who gave me strength, guidance, and inspiration to achieve anything that I start. Even when I thought of giving up, I would remember her words and how I could not afford to let her down.

To my parents, friends and family who helped me though the grieving process with support and to overcome my challenges, I appreciate them. They have encouraged and helped me to be a strong and better person.

Lastly, I dedicate my research to my almighty god for guiding me, giving me strength, protecting me and enabling me to learn these skills with a focused mind, glory to him. And my supervisor for believing in me, relating to the challenges that I was faced with and encouraging me to make my research much better.

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I will always be grateful to my supervisor Dr Jabulile Msimango-Galawe for the support, mentorship and life improving tasks. She is a very humble human being with a very professional approach to research and people, this is very inspirational for me. Throughout my career I will emulate her style or approach as it inspires me a lot.

Thank you to Wits University and all the people who contributed to my journey and completing this research.

Abstract

Despite the high rate of ICT adoption in South Africa, little is known about the impact of ICT adoption on business performance among SMEs; thus, a study such as this was necessary to reduce the failure rate of SMEs during their first five years.

Design/methodology/approach – In South Africa, SME survey data were collected using purposive sampling, with a sample size of 385, and multiple regression was used for analysis.

Findings - H1, H2 & H3 were accepted at p-value < 0.001 statistically significant level. Based on the multiple regression analysis results (R-value = .938; R-square = .966; p-value = 0.001). It is therefore evident that there is a statistically significant relationship between technology, organization and external environmental factors and business performance.

Conclusions – The results indicate that technological, organisational, and environmental contexts have direct and statistically significant relationships with business performance.

Research limitations/implications – Due to the study's limited scope and phases, additional data are required to apply the findings to other industries/sectors/countries.

Implications/practical applications – The study's findings have significant implications for SME managers and owners who are promoting ICT adoption within their organisations. This study seeks to educate managers on the significance of external assistance for small and medium-sized enterprises (SMEs), particularly those lacking the competencies, skills, or an ICT division. Adoption of ICT provides small and medium-sized enterprises with access to real-time data, advanced analytics, and reporting tools. This allows managers to make well-informed decisions based on current and accurate information. In order to capitalize on this advantage, managers should prioritize developing data-driven decision-making capabilities and ensuring that employees have the necessary skills to interpret and analyse data.

Originality/value – The paper contributes to the expanding literature on innovation adoption by utilising T-O-E frameworks to explain the technology adoption by SMEs.

Keywords: TOE, SME, Adoption, Innovation

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Chapter 1. INTRODUCTION

1.1 Statement of purpose

This quantitative study investigated the impact of ICT adoption on business performance among SMEs in South Africa

1.2 Background of the study

As businesses increasingly rely on information and communication technology, it is critical that we gain a better knowledge of how ICT adoption affects Small and Medium Enterprises (SMEs).

Gokhe (2022) states that ICT is the technology that facilitates information-based activity. These activities include data collection, processing, storage, and presentation (Gokhe, 2022). These operations increasingly demand teamwork and communication. Consequently, IT has evolved into ICT: information and communication technology (Gokhe, 2022).

According to (Kalidas, Magwentshu & Rajagopaul, 2022) more than 98 percent of South Africa's firms are small and medium-sized enterprises (SMEs), which employ between 50 and 60 percent of the country's workforce across all sectors and account for a quarter of the private sector's job growth. Despite the fact that South Africa's SME contributions to GDP are lower than in other regions—39 percent compared to 57 percent in the European Union—there is no doubt that this sector is a vital economic engine (Kalidas et al., 2022).

According to (Kyakulumbye & Pather, 2021) Small and Medium-Sized Enterprises (SMEs) are acknowledged as crucial to the expansion of developing economies. Kyakulumbye and Pather (2021) further state that consensus exists that this industry has substantial potential for enhanced business outcomes via the application of information and communication technologies (ICTs).

The study by (Harindranath & Özcan, 2022) used the Framework of e-commerce technology adoption by SMEs as an overall framework, along with impacts from other major methodologies, such as the diffusion of innovations, the Technology Acceptance Model, and the Resource Based View, to analyse ICT acceptance and use in SMEs. The is very limited research that draws from Technology Organisational Environmental model (Tonatzky & Fleischer, 1990) as an overarching framework and the Dynamic Capabilities theory (Teece, Pisano & Sheun, 1997) that will help us to

understand the impact of ICT adoption on business performance among SMEs in South Africa, hence the is a need for a study such as this. Furthermore, an issue of low ICT adoption in Africa, and the reasons behind this are poorly understood (Kyakulumbye & Pather, 2021), hence there is a need for a study such as this. Kyakulumbye and Pather, (2021) conducted a study on understanding ICT uptake among SMEs in Uganda: A participatory design model for technology diffusion, but there is limited research in relation to the South African context, this further necessitates the necessity of this investigation.

1.3 Research problem

Government leaders, economists, and policymakers in South Africa view Small and Medium-Sized Enterprises as a means of lowering unemployment (Jere & Ngidi, 2020). This strategy has not been successful, since just 1% of micro-enterprises that begin with five employees grow to ten or more employees (University of the Western Cape, 2022). Jere and Ngidi, (2020) states that despite the government's efforts to invest in the development of SMEs by providing funding opportunities, advice and referrals, tender information and advice, market access, and business linkages, to name a few this is not the case (Small Enterprise Development Agency, 2022).

Numerous obstacles, such as a lack of manufacturing capacity, market access, and most crucially for the purposes of this study, the adoption of ICT, may impede their performance (Pillay, 2016). Despite the high rate of ICT adoption in South Africa, little is known about the impact of ICT adoption on business performance among SMEs on a national scale considering that 70 to 80 percent of small businesses fail during their first five years (University of the Western Cape, 2022). This study aims to bridge the knowledge gap regarding ICT adoption and its impact on business performance among South African SME's.

1.4 Research objectives

Primary research objective

To investigate the impact of ICT adoption on business performance among SMEs in South Africa

Theoretical research objectives

- To review literature technology organizational environmental model
- To review literature on dynamic capabilities theory

Empirical research objectives

- To investigate the impact of the technological factors on business performance among SMEs
- To investigate the impact of the organizational factors on business performance among SMEs
- To investigate the impact of the external environmental factors on business performance among SMEs

1.5 Rationale

In 2021, 41.19 million people out of a total population of 61 million were active Internet users in South Africa (Johnson, 2022). Another research by the National Youth Development Agency found that 79 percent of small and medium-sized enterprises had internet connection whereas 21 percent do not (Johnson, 2021). The data suggests that SME adoption of ICT in South Africa and consumer markets is above average. Nevertheless, Cant, Wild and Hung (2015) indicate that South Africa is one of the most expensive countries for Internet connection, which explains why 21 percent of SMEs and 20 million individuals do not have access to the Internet.

Studies identify a lack of ICT understanding, management support, and ICT infrastructure as significant factors that influence ICT adoption (Kyobe, 2011; Gono, Hariandranath, & Zlan, 2016). According to Kyobe (2011) before ICT can be properly embraced, essential infrastructure in technology must be in place, such as electricity availability and consistency, government and other stakeholder commitment, and reasonable bandwidth. Gono, Hariandranath, and Zlan (2016) found in a separate study that SMEs in the manufacturing and logistics industries required external assistance/support because a significant number of respondents lacked the necessary ICT skills. Despite the high rate of ICT adoption in South Africa, little is known about the impact of ICT adoption on business performance among SMEs.

1.6 Delimitations of the study

This study will be limited to analysing the effect of ICT adoption on business performance among South African small and medium-sized enterprises. The study will not investigate other potential business success variables. This study will exclusively examine South Africa; the impact of the

variables on other nations will not be examined. This study will solely examine small and medium-sized enterprises.

This research will concentrate on the technology organisational environment model for measuring adoption and the dynamic capabilities theory for measuring business performance. This study will be quantitative in nature, employing nonprobability sampling, and cross-sectional in design.

The researcher advises conducting longitudinal research in the future to determine whether ICT adoption changes significantly depending on the model employed.

1.7 Definition of terms

Information Communication Technology: ICT, or information and communications technology, is the infrastructure and components that make modern computing possible (Pratt, 2022). Although there is no single, universal definition of ICT, the term is commonly understood to refer to all devices, networking components, applications, and systems that allow individuals and organisations (such as businesses, nonprofits, governments, and criminal organisations) to interact in the digital world (Pratt, 2022).

Business Performance: Business performance, which is closely related to commercial effectiveness, is determined by a company's capacity to implement optimal organisation in order to provide a product or service that satisfies consumer and customer expectations (Riberolles, 2022).

Technology organizational environmental model: The framework is an organizational-level theory developed by Tornatzky and Fleischer (1990) to explain the factors that influence enterprise-level technology 4.0 adoption decisions. The TOE model framework identifies organisational factors, technological factors, and environmental factors as the three major elements that influence the adoption process at the business level (Bawono, Winarno & Karyono, 2022).

Dynamic capabilities theory: Teece, Pisano, and Shuen (1997) define dynamic capabilities as the firm's capacity to combine, develop, and reconfigure external and internal expertise in response to a rapidly changing environment.

1.8 Assumptions

The assumptions made in this research are.

- The sample will have the required information and be willing to share it.
- The research study is anchored on the assumption that the respondents will be honest in answering questionnaires which upon data to be gathered by the researcher are valid and reliable for correlation.
- If the respondent does not wish to disclose certain information, they will inform the researcher that this is the case. And the research study will be timely relevant to the respondents that will results in an outcome providing basis of knowledge to the questions.

1.9 Chapter Outline

Chapter 1: Introduction

This chapter discusses the study's background of the study, problem statement, research objectives, and rationale. In addition, the section briefly describes the delimitations, assumptions and definition of key terms. The chapter closed with an overview of the study.

Chapter 2: Literature Review

This chapter is concerned with the research objectives which will be discussed theoretical and empirically. The conceptual framework will be presented, and the hypothesis will be developed.

Chapter 3: Research Methodology

In this chapter, the approach used to conduct this research is detailed. It begins by defining the fundamental notions of research technique. Then, a review of the research design and a discussion of the data collection and data analysis challenges associated with this study will follow, along with the statistical techniques that will be employed.

Chapter 4: Presentation of the Results

In this chapter, the empirical findings of the investigation are discussed. This is achieved through analysing, interpreting, and assessing the findings thoroughly.

Chapter 5: Conclusion and Recommendation

This chapter highlights key distinctions between the present research and other recent findings. In addition to links to the current thinking and suggestions for SME and policymakers. In addition, the limitations of the study and future research potential are explored.

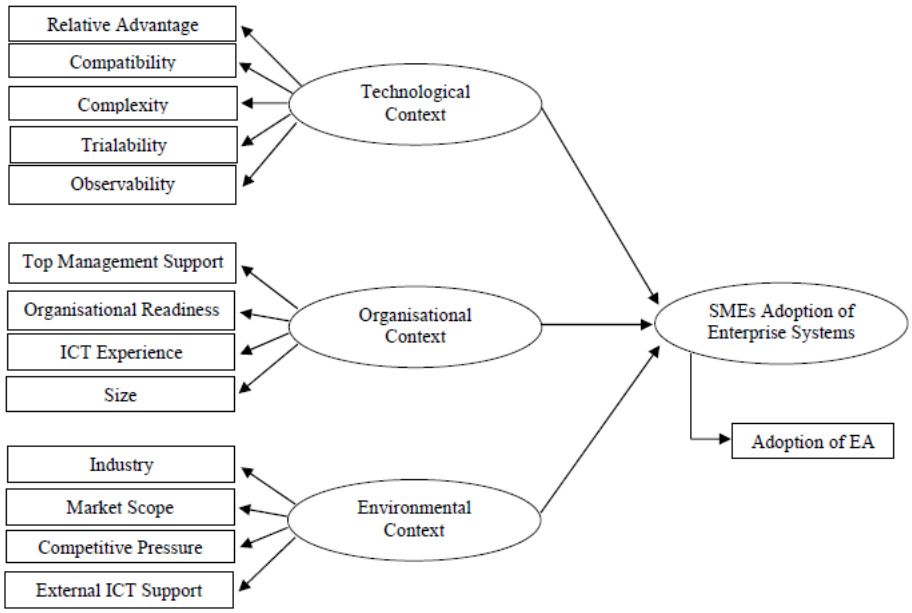
1.10 Conclusion

Chapter 1 offers an overview of the research. The focus was on the study's background, problem statement, theoretical and empirical objectives, rationale, and delimitations of the study.

Chapter 2. LITERATURE REVIEW

2.1 Introduction

The previous chapter covered the study's background, problem statement, theoretical and empirical objectives, rationale, and delimitations of the study. This chapter, chapter two, seeks to address all of the objectives stated in chapter 1. This chapter will also examine various technological acceptance theories. In addition to discussing the study's primary framework, the Technology, Organisation, and Environment (TOE) Framework.



TOE Model of Enterprise Systems Adoption in SMEs

Technological dimension:

One may argue that the technological environment has a significant influence on SMEs' adoption on ICT. According to Premkumar (2003), there aren't many research that look at how technological features affect SMEs' adoption of ICT. It is believed that technological characteristics such as trailability, observability, compatibility, relative advantage, and complexity affect the adoption. It provides adopters a number of advantages in terms of facilitating corporate expansion, enhancing operational and administrative costs, and streamlining business procedures (Markus and Tanis,

2000). These advantages provide compelling reasons to adopt these technologies in a highly competitive environment.

Organizational dimension:

It can be argued that organizational context has a significant influence on SMEs' adoption.

Numerous studies on SMEs appear to be primarily focused on factors within the organizational setting (Premkumar, 2003). Organizational characteristics that impact adoption in SMEs include size, IS experience, top management support, and organizational readiness. According to Jeyaraj et al. (2006), one of the best indicators of an organization's adoption of ICT is top management support. A clear organizational vision and effective communication of values are two ways that top management can promote transformation (Thong, 1999). Many studies (e.g., Premkumar and Roberts, 1999; Grover and Goslar, 1993) have found that senior management support is essential for fostering an environment that is conducive to the adoption of new technology. The decision-maker in SMEs is almost certainly a member of the top management group, and adoption cannot occur without their cooperation.

Environmental dimension:

It can be argued that the environmental context has a significant influence on SMEs' adoption on ICT. The industry, size of the market, pressure from competitors, and outside ICT help are seen to be environmental factors that affect SMEs' adoption.

The relationship between ICT adoption and business performance:

Prior research has demonstrated the connections between organizational performance and business capabilities, as assessed by both financial (profits and returns) and market-related (sales and market share) metrics. Adoption of ICT has reportedly been shown to improve organizational effectiveness.

2.2 Defining SME's

There is no globally agreed definition of table 2.1 SMEs because they are defined differently in each country in relation to their economy (OECD, 2017). For example, the European Union defines

a SME as a company with fewer than 250 employees or annual revenue of less than 50 million euros (European Commission, 2016:3). In the South African context, these conditions are impractical because they would identify over 90% of all enterprises (including listed corporations) as SMEs (Pillay, 2016).

Most definitions are "generally quantitative in nature, focusing mostly on several employees, assets, size, and revenue" (Muriithi, 2017:37). Definitions may differ further in some countries, such as China, the United States (US), and Canada, depending on the industrial policies that SMEs are subject to (El Madani, 2018). A manufacturing company, for example, might have 500 people and still be classified as a SME, whereas a bakery should have less than 500.

The words SMEs and SMMEs are used interchangeably in South Africa. The National Small Business Amendment (Act 26 of 2003) defines SMEs. "SMEs based on certain categories, standard industrial sector, and subsector classification, size of the class, equivalent" (Small business development department, 2019).

Table 2.1 depicts three types of SME sectors: micro, small, and medium."Micro: 10 or fewer paid employees with an annual turnover of between R5 and R20 million, small: 11 to 50 employees with an annual turnover of between R15 million and R80 million, medium enterprises: 250 employees with an annual turnover of between R40 million and R220 million" (Urban-Econ Development Economists, 2019:8). However, as illustrated in table 2.1, these cut-off positions varied among economic sectors.

According to the Department of Trade and Industry (DTI), SMEs include a wide range of firms, including those that are officially registered, informally registered, and non-VAT registered. Informal and non-VAT businesses rarely grow in order to create jobs or help the economy. These are often firms that are only concerned with the owner's survival (SEDA, 2016). Only 1% of these microenterprises with 5 employees will expand to 10 or more (University of the Western Cape (UWC), 2022).

Table 2.1: Department of Small Business Development

Column 1	Column 2	Column 3	Column 4
Sectors or sub - sectors in with the Standard Industrial Classification Agriculture	Size or class of enterprise	Total full - time equivalent ofpaid employees	Total annual turnover
	Mediurm	51-250	€ 35,0 million
	Small	11- 50	$ 17,0 million
	Micro	0-10	< 7,0 million
Mining and Quarrying	Medium	51-250	$ 210,0 mtion
	Smail	11-50	50,0 millon
	Micro	0-10	15,0 mason
Manufact	Medium	51-250	≤170,0 milion
	Small	11- 50	50,0 millon
	Micro	0-10	10,0 million
Electricity , Gas and Water	Medium	51-250	$ 180,0 mation
	Small	11- 50	60,0 million
	Micro	0-10	$ 10,0 million
Construction	Medium	51-250	170,0 million
	Small	11- 50	75,0 million
	Micro	0 10	10,0 millon
otor trade and repair services.	Medium	51-250	s 500 million
	Small	11- 50	$ 25,0 mion
	Micre	0-10	* 7.5 million
Wholesale	Medium	51-250	s 220.0 million
	Small	11- 50	800 mon
	Micro	0-10	€ 20,0 millon
Catering . Accommodation and other Trade	Medium	51-250	40,0 ton
	Small	11-50	15,0 million
	Micro	0-10	5,0 mion
Transport , Storage and communication	Medium	51-250	s140,0 milion
	Small	11- 50	s 45.0 millon
	Micro	0-10	7,5 million
Finance and Business Services	Medium	51-250	85,0 millon
	Small	11- 50	35,0mmon
	Micro	0-10	7,5 million
Community , Social and Personal Services	Medium	51-250	70,0 mion
	Small	11- 50	s22,0 million
	Micro	0-10	5,0 milban

2.3 Challenges facing SME's.

SMEs encounter internal as well as external obstacles. Internal problems are issues that affect the firm internally. Businesses have control on these elements. External problems are elements that are beyond the control of businesses. Corruption and criminality are two examples (Sityata, 2019). This section will concentrate on the significant or common difficulties reported across many research and SEDA reports.

2.3.1 Inadequate financial resources

SMEs in South Africa need financial resources to sustain their operations (Janse van Vuurman, 2022). According to Falkena et al. (2021), the cause stems from historical cycles of income disparity and social injustice. Furthermore, just 6% of SMEs receive government aid, with the remaining 9% receiving funding from private organisations (Adclick Africa, 2018). The majority of private firms prefer to invest in established enterprises, with over 90% of capital moving to firms older than five years (Mckinsey, 2017). Furthermore, the majority of SMEs have a low credit history or score (Janse van Vuurman, 2022). As a result, banks are hesitant to lend funds to SMEs because it is viewed as a risky investment, preferring to invest in small enterprises in their later phases of development (Bureau for Economic Research, 2016:7; Outsource Finance). As a result, the company is unable to invest in other operations that will help it expand. According to research, 5.6

million SMMEs were reported in the country in 2018, with 3.3 million classified as "survivalist firms" (Janse van Vuurman, 2022).

2.3.2 Inadequate access to physical infrastructure

The lack of physical infrastructure stifles SME growth and greatly raises the cost of doing business. To conduct day-to-day business operations, businesses must have consistent access to energy, water, communication services, roads, and inexpensive, safe public transportation (Bureau for Economic Research, 2016; Dietrich, 2019). To demonstrate, the effects of load shedding on loss of production, profit, theft and burglary, and electronic damage, particularly for firms without an alternate power supply such as a generator (Slater, 2021). Furthermore, infrastructure may include business services such as accounting and legal assistance, which are not always readily available to South African business owners (Bureau for Economic Research, 2016).

2.3.3 Inadequate market access

Several SMEs indicated ongoing challenges in connecting with potential customers (Kalidas, Magwentshu, & Rajagopaul, 2020). According to the Small Enterprise Development Agency (SEDA), SMEs are impacted by a lack of demand or market possibilities for their products. Simultaneously, there is competition among huge firms, which pushes prices in various areas. Furthermore, Cilliers (2016) claims that insufficient product and service marketing has contributed to small businesses' incapacity to join marketplaces. In addition, Cilliers (2016) observes that only a limited percentage of small enterprises with excellent products get exposed to national and worldwide markets. As a result, some SMEs are unduly reliant on a small number of customers, and in other cases, an entire firm can be centred in a single local redistribution (Kalidas et al., 2020).

2.3.4 Inadequate business information

Another challenge that African SMEs must cope with is a lack of relevant business information from both governments and service providers. The foundation of the problem is poor information environments caused by inadequate technology and communication infrastructures and insufficient business support systems (OEDC, 2017). Access to information is critical for making educated decisions, which helps SMEs remain competitive (Modimogale & Kroeze, 2011). Even

when funds are available, SMEs face substantial difficulties in acquiring the essential help due to a lack of awareness (Kalidas et al., 2020).

2.3.5 Human resource issues

As a result of brain drain, South Africa now has a limited pool of professionals. Given South Africa's economic situation, a trained workforce is critical to boosting corporate performance and strategy. To elaborate, the country is currently facing a skills shortage. This is the idea that the demand for certain skills vastly outnumbers the supply. Skill shortages mostly influence commercial services such as accountancy and sales capabilities. To make judgements, the owner or management must have basic training and knowledge. However, the majority of SME owners in South Africa lack formal education or a higher-level credential. SME failures are mostly the result of a lack of managerial skills, experience in functional areas such as marketing and human resources, and financial understanding (Cant & Wild, 2013) (Both et al, 2021).

2.4 Opportunities Facing SME's

SMEs confront numerous opportunities. According to studies, government alternatives include market access, financing, and long-term company development (SEDA, 2016). According to surveys, technology provides significantly more opportunities to respond to changing market or company demands. While technology can solve most problems, SMEs should recognize that it is only a tool for implementing sound strategy.

Costa and Castro (2021) propose e-commerce and show how rural SMMEs are taking use of it. Digital technology, according to Costa and Castro (2021), enable new methods of reaching clients as well as corporate processes and payments. According to Kalidas et al. (2017), the pandemic gave an opportunity for SMEs to enter new markets through digital adoption. The emergence of online marketplaces helps producers to gain access to new markets, which is one method of overcoming this obstacle (Kalidas et al., 2017).

Prett and Wolfe (2009) suggested two other aspects in which SMEs might expand or profit: product enhancement and process improvement innovation. According to Romano (1990), R&D and new technologies are effective internal drivers of SME growth. New products and product revisions enable a company to gain market leadership or market share growth by luring customers

away from competitors, resulting in improved profitability. Aside from that, Ensaria and Karabay (2014) discovered that previous research showed a number of elements that contribute to the success of SMEs. The factors were divided into the following categories: entrepreneur qualities, (2) SME characteristics, management and know-how, products and services, customers and markets, business and collaboration methods, strategy, external environment, and internet.

Examination of Relevant ICT and SME Literature

Despite divergent opinions regarding the importance of the factors influencing ICT adoption and use, there is a continuous discussion about the usefulness of ICT for SMEs both inside and outside of the academic community (Parker and Castleman, 2007). According to earlier research on ICT adoption, small and medium-sized enterprises (SMEs) in developing nations have not fully embraced technology advancements to expand their operations beyond conventional borders. These include offline customer identification, the use of multiple intermediaries, and distance-restricted marketing channels (Humphrey et al., 2003; Molla and Licker, 2005; Shemi and Procter, 2013).

A deeper comprehension of the variables that influence or limit the adoption and use of ICT is required (Taylor and Todd, 1995; (Harindranath et al, 2008; Mpofu et al, 2010).

This research attempts to deepen our understanding of the company, sector, and country-specific context of ICT adoption processes by SMEs with implications for policy, specifically regarding our context.

According to Gagnon and Toulouse (1996), the use of ICT in business is now necessary for survival rather than choice, and they emphasize how important and necessary it is to accept new technology. Similar findings were made by Caldeira and Ward (2002) in their study conducted in Portugal, which revealed that SMEs that were succeeding locally (i.e., in the protected home market) were losing out to external companies that were using more aggressive business strategies and techniques, which caused their market share to decline. An analogous dispute was.

2.5 Definition of topic

The framework is an organizational-level theory developed by Tornatzky and Fleischer (1990) to explain the factors that influence enterprise-level technology 4.0 adoption decisions. The TOE model framework identifies organisational factors, technological factors, and environmental factors as the three major elements that influence the adoption process at the business level (Bawono, Winarno & Karyono, 2022). According to Lei and Ngai (2012), TOE is the only theoretical framework that encompasses all drivers that can impact ICT adoption. The Theory-Based Resource View places an emphasis on the technological and organisational context's antecedents (Bawono, Winarno & Karyono, 2022). Specifically, this theory provides a framework for explaining the contribution of organization-specific technology/resources and the capacity to influence ICT initiatives (Chong and Olesen, 2017).

According to (Samsudin & Ismail, 2019) the discussion regarding the theory of dynamic capability has shed light on the history and evolution of the theory of dynamic capabilities in an environment that is constantly changing. The theory of dynamic capability is not intended to replace the existing theory of resource-based view (RBV); however, this theory expands the current application of RBV in explaining the competitive advantage of a firm in a dynamic environment (Samsudin & Ismail, 2019). The distinction between customer behavior and institutional behavior will have a direct impact on business performance (Samsudin & Ismail, 2019). Extensive use has been made of the theory of dynamic capability to discuss the competitive advantage in a dynamic environment, particularly in business (Samsudin & Ismail, 2019). When the company decided to expand its business beyond its home country, it had to be flexible and willing to change in order to ensure its long-term viability (Samsudin & Ismail, 2019). In order to measure the dynamic nature of business performance, the theory of dynamic capabilities comes into play (Samsudin & Ismail, 2019).

2.6 First research objective

To investigate the impact of the technological factors on business performance among SMEs

New technologies and innovations are not required to be novel to society. Instead, the adopter may perceive the technology as novel (Lupo, 2015). Adoption theory applies to the adoption of both marketing strategy innovation and material innovation. Some small businesses may view the adoption of technology 4.0 as an innovation to incorporate into their future business strategies.

Olanrewaju, Hossain, Whiteside and Marcieca (2020) proposed that the adoption of technology 4.0 mediates the relationship between the TOE model and the performance of SMEs.

Hypothesis 1

H1: Technological factors have a positive influence on business performance.

2.7 Second research objective

To investigate the impact of the organizational factors on business performance among SME's

If top management works positively to adopt technology 4.0 alone, it can reduce organisational resistance or obstructive factors that prevent organisations from innovating technology (Tajudeen, Jaafar & Ainin, 2018). Therefore, top-level management support is indispensable and serves as a strategic resource for enhancing company performance (Singh, Del Giudice, Tarba, De Bernardi, 2019).

Hypothesis 2

H2: Organisational factors have a positive impact on business performance.

2.8 Third research objective

To investigate the impact of the external environmental factors on business performance among SMEs

Factors Environmental impacts facilitate comprehension of the external factors influencing the performance of small and medium-sized enterprises (Haseeb, Hussain, Slusarczyk & Jermsittiparsert, 2019). Competitive intensity arises when there are a large number of competitors and few opportunities for growth in an industry (Dias et al., 2020). Intensity of competition is also a significant factor that contributes to the hostile environment. According to Pateli, Mylonas and Spyrou (2020), their study, based on a sample of 182 Chinese manufacturing firms, demonstrates the effect of competitive intensity on firm performance. Competitive pressure occurs when competitors exert pressure that compels a business to adopt 4.0 technologies for survival (Seo et al., 2020). In the context of SMEs, it is stated that the greater the number of organisations under competitive pressure, the greater the impact on their performance (Tella, Ukwoma & Adeniyi, 2020).

Hypothesis 3

H3: External environmental factors have a positive impact on business performance.

2.9 Analytical framework

2.9.1 Theoretical framework

Tonatzky and Fleischer's (1990) TOE technology adoption model observes three contexts of small and medium-sized enterprises (SMEs) in adopting information technology: the context of technology, the context of the organisation, and the context of the environment. The technological context consists of new technologies pertinent to the organisation (Alsharjiet, Ahmad, Abu Bakar & Rahim, 2018). Technological context is the degree of organisational preparedness in adopting technology, which is approximated by the support of SME managers in adopting technology (Zhu & Kraemer, 2006). According to Okechi and Kepeghom (2013), the organisational context must be supported by an organisational understanding of innovation's characteristics in order to aid in redesigning and aligning business activities with the adopted information technology. The environmental context refers to the pressures faced by SMEs on a daily basis that motivate them to adopt new technologies. The external environmental context is the area in which a business operates, including its industry's location, its competitors, regulations, access to resources provided by others, and its interactions with governments (Alsharjiet al.,2018). Hence the TOE will be used to measure ICT adoption.

Teece and Pisano's (1994) dynamic capabilities theory is an extension of the resource-based view (RBV) of the firm (Barney, 1986, 1991). RBV is static in nature and insufficient to explain the competitive advantage of the firm in a changing market environment (Barney, 1986, 1991; Peretaf, 1993). As a result, RBV is insufficient to explain the competitive advantage of the firm in a changing market environment (Priem & Butler, 2001).

In addition, the resource-based view of the firm considers the firm's unique, scarce, and imitable resources that have contributed to its competitive advantage and growth (Barney, 1986) the process of maintaining competitive advantage is limitless and dynamic (Hung, Yang, Lien, McLean, & Kuo, 2010); therefore, scholars have proposed that in order for a firm to remain competitive in the market, it must develop specific capabilities and continuous learning (Argyris & Schon, 1978;

Hammer, 2001; Jashapara, 1993; Senge, 1990; Zott, 2003). The absence of dynamic capabilities will prevent the company from retaining its competitive advantage, particularly in a changing environment (Gnizy, Baker, & Grinstein, 2014).

Since the foundation of international ambidexterity literature (Hsu, Lien, & Chen, 2013; Luo, 2002; Luo & Rui, 2009; Prange & Verdier, 2011), which defines ambidexterity as the firm capability to respond to the environmental complexity and international experience in the field of international business, scholars have shown a growing interest in the application of dynamic capabilities (Hsu et al., 2013).

Teece, Pisano, and Shuen (1997) define dynamic capabilities as the firm's capacity to combine, develop, and reconfigure external and internal expertise in response to a rapidly changing environment. Previous research has defined dynamic capabilities in considerable detail. Eisenhardt and Martin (2000) define dynamic capabilities as the process of utilising resources to generate new resources capable of causing a market shift. Markets change when the market evolves, emerge, split, or even die. In addition, dynamic capabilities are the result of the acquisition, integration, and recombination of resources that generate new strategies (Grant, 1996b; Pisano, 1994). Therefore, dynamic capabilities are a factor in the development of new competitive advantage sources (Henderson & Cocburn, 1994; Teece et al., 1997). Previous researchers viewed dynamic capabilities as the solution to inflexible capabilities (Schreyogg & Kliesch-Eberl, 2007), how to utilize and apply knowledge (Easterby-Smith & Prieto, 2008), and some even agreed that dynamic capabilities can explain how firms respond to change (Newey & Zahra, 2009). Hence dynamic capabilities theory will be used to measure performance.

2.9.2 Conceptual framework

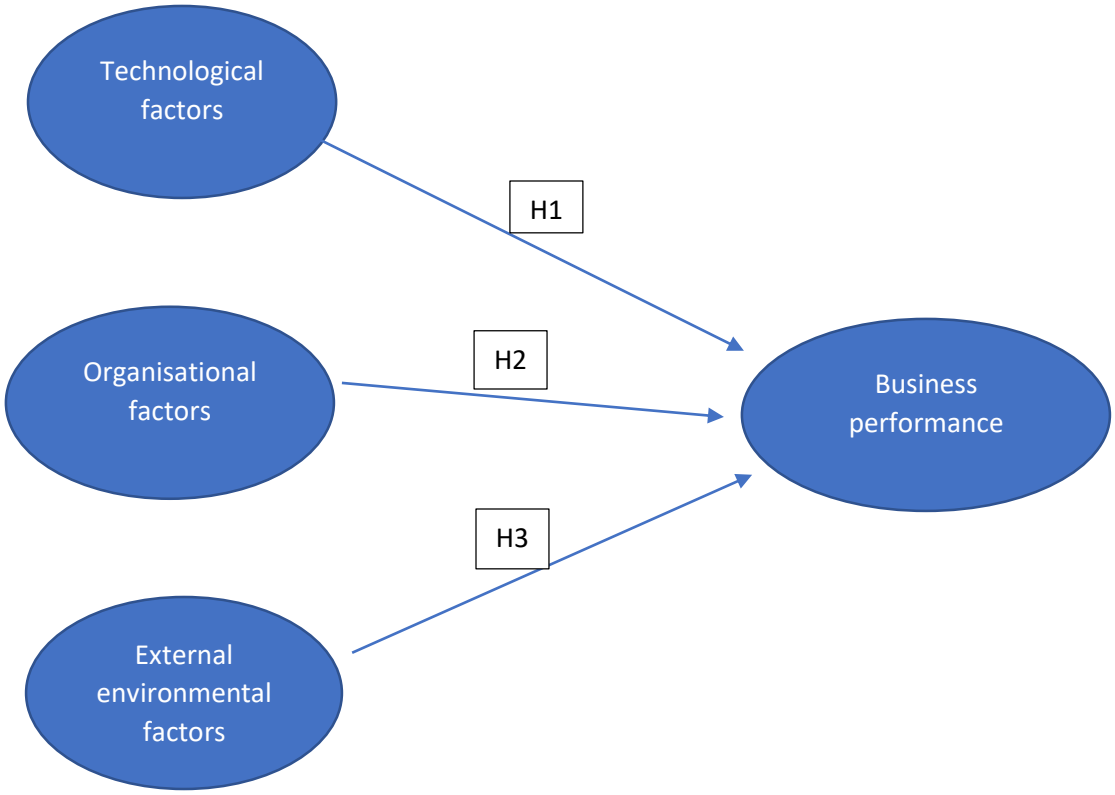


Figure 1: Proposed conceptual model.

2.10 Conclusion of literature review

This chapter examined the research objectives and developments of hypothesis. And concluded with a review of the TOE Framework (Technology, Organisation, Environment).

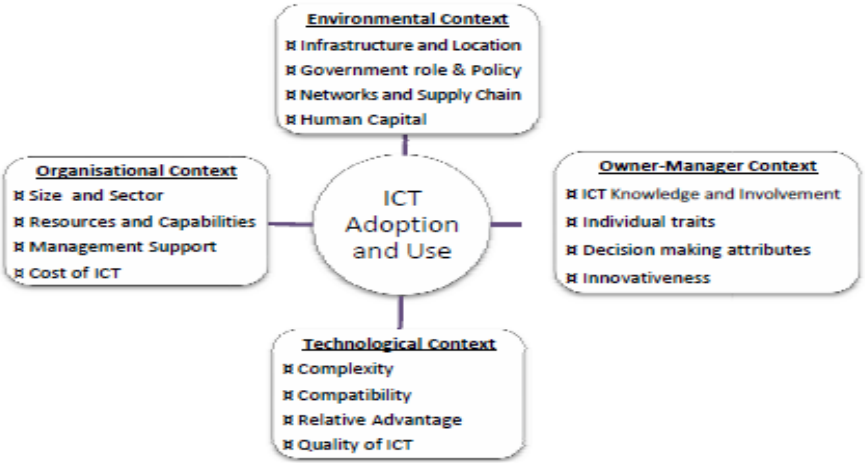
CHAPTER 3. RESEARCH METHODOLOGY

3.1 Introduction

This section describes how the research was conducted. In contrast to Chapter 2 (literature review), Chapter 3 examines the various research paradigms. The research approach, research design quantitative, come next. In addition, the sampling method, population, and sample size were employed in this study. Lastly, a discussion on the acquisition and analysis of data.

The authors used surveys and interviews as their main data gathering methods in an explorative-interpretive strategy to meet the study's aims. We suggest that research questions can be informed by both approaches and help develop rich insights into various phenomena of interest that cannot be fully understood using only a quantitative or a qualitative method when qualitative and quantitative methods are combined in a single study (Venkatesh et al, 2013). According to Chin et al. (2012), qualitative methods can be used to delve deeper into the research area and supplement previous studies (Wolf, 2001; Langmia, 2006; Mutula and Brakel, 2007; Kew and Herington, 2009; Fatoki and Garwe, 2010) by utilizing quantitative methods to explore and generate new understanding. This demonstrates the "complementarity effect" between the methods of investigating ICT through surveys and interviews. Additionally, the extensiveness and range of inquiry will be enhanced, expanded, and sought for through complementarity—the seeking of elaboration and explanation of the results from one technique with the findings from the other approach (Azorin and Cameron, 2012). ICT researchers frequently come upon circumstances where current theories and findings do not adequately explain or provide meaningful insights into a phenomenon of interest, especially in less-studied research contexts like South Africa. IS researchers may effectively handle such circumstances and then contribute to theory and practice by using mixed methodologies design strategies (Venkatesh et al, 2013).The authors argue that using both quantitative and qualitative methods is more appropriate in this particular research context because a holistic approach can be used to investigate phenomena that are not well known, such as closely examining intricate firm relationships and the phenomenon in its natural setting

Figure below represent the research framework (TOOE) as retrieved from Rashid & Al-Qirim (2001)



By using a mixed-method approach and the above-mentioned customized framework as a guide, contextually rich subtleties that shed light on ICT adoption in South Africa can be extracted. In addition to human capital, infrastructure, location, resources, and the individual characteristics of owner-managers, we have added diversity of nationalities, a rich geopolitical history dominated by apartheid, and a distinct economic structure (that is, one that is seen as both developed and developing). Moreover, firm sector must be included in the framework in order to do cross-sector analysis.

3.2 Research approach

The objective of quantitative research is to classify features, count them, and construct statistical models in an attempt to explain what is observed. It is argued that it is centred and constructed due to the systematic method used to analyse numerical data (Kumar, 2011). In addition, tests that can verify the validity and reliability of the data, inferential statistics to test the hypothesis, and measurement tools can be used to achieve the objectives of the empirical study (Kumar, 2011). Similarly, Cooper & Schindler (2014) asserted that a quantitative design permits the collection of numerical data, which can be evaluated via statistical analysis to provide the most objective explanation of the data. This study employed a quantitative and cross-sectional research design based on the information presented above.

3.3 Research design

Research design has been described as a framework consisting of the steps and methods to be implemented, which will assist the researcher in obtaining the correct, precise, and objective

answers to the developed research objectives. The research design is a framework that describes the required data collection and the collection and measurement instruments that will be used to test and analyse the data of a carefully chosen sample (Kumar, 2011). Quantitative research also permits the identification and evaluation of the relationships between variables. More importantly, the results of a quantitative study can be generalized to a larger population, and sufficient information is provided for the study to be repeated or verified (Cooper & Schindler, 2014).

3.4 Data collection methods

The researcher collected data through questionnaires adapted from literature consulted. The researcher will travel to SEDA and requestion email addresses of all registered businesses that met the SME criteria then the researcher will send out email with the survey link. SMEs email addresses where retrieved from the database for distribution.

3.5 Population and sample

3.5.1 Population

The study population comprises the larger collection of variables from which conclusions are drawn (Cooper & Schindler 2014). This study's population consisted of 2363513 SMEs in South Africa (Small enterprise development agency, 2022).

3.5.2 Sample

A sample, which is a subset of the population, allows the researcher to draw specific conclusions about the population (Cooper & Schindler, 2014). In this study, the sample consisted of 385 respondents; Raosoft was used to determine this sample size with a margin of error of 5%, a confidence level of 95%, and a response distribution of 50%.

3.5.3 Sampling method

Two options were considered for selecting this sample: probability sampling and non-probability sampling (Cooper & Schindler, 2014). Due to time and resource constraints, all South African SMEs cannot have an equal chance of being selected to participate in the study as seen in a probability sample. Non-probability sampling, on the other hand, is preferable due to its lower cost, shorter

time period, and greater access viability. There are various non-probability sampling methods, including purposive, snowball, quota, and convenience (Cooper & Schindler, 2014).

Purposeful sampling entails collecting data from respondents who are able to provide the most pertinent or useful information, typically those regarded as experts in the field of study or those who have experienced a particular event or incident (Kumar, 2011). Snowball sampling centres on a specific network of individuals. The sample is addressed in stages, beginning with a small number of respondents, and expanding to include additional contacts within the same network. This study utilised non-probability convenience sampling, in which the researcher collected data from a group of South African SME's that was accessible.

3.6 The research instrument

To obtain demographic information from respondents, descriptive questions will be asked. Section B questions were answered using a Likert scale ranging from "Strongly Disagree to Strongly Agree." The questionnaire will be adapted from prior research.

3.7 Procedure for data collection

The researcher invited business owners and managers to participate in the study via email. The survey method, namely self-administered questionnaires, will also be used to collect quantitative data for statistically testing the conceptual model (Greener & Martelli, 2018). The survey method was chosen because it is adaptable, can be well-structured, and provides respondents with an easy way to participate in the study (Greener & Martelli, 2018). The Yellow Pages was used to obtain the email addresses of various businesses.

3.8 Data analysis strategies and interpretation

This study utilised IBM® Statistical Package for the Social Sciences® (SPSS) version 27 to analyse and interpret the data collected from respondents via self-administered questionnaires. SPSS® is a software application that enables respondents to process large data sets. Using SPSS®, the following statistical tests will be conducted. First, frequency distributions and tests using cross-tabulation. Secondly, the instrument's reliability and validity will be determined using exploratory factor analysis (EFA) and Cronbach's Alpha tests. In addition to descriptive statistics, multiple regression analysis tests will be conducted to test the hypothesis.

3.9 Possible limitations and challenges of the study

Even though the study may produce meaningful results, it will be subject to a number of restrictions. Some potential limitations can be used to identify future research opportunities. The most glaring limitation is that the study population was limited to SME business owners and managers in South Africa, a single African region. This restricts the ability to generalize the findings to African SME business owners and managers. In addition, expanding the research to other African nations would be a valuable direction for future study. Specifically, if data collection is expanded to include other SME business owners and managers in other African nations, such as Botswana or Zimbabwe, the research findings may be more insightful.

3.10 Quality assurance

Initially, the following tests will establish the dependability and validity of the measurement instrument, namely the questionnaire. An exploratory factor analysis (EFA) utilising principal component analysis (PCA) with the oblimin rotation method will be conducted to determine the interrelationships between the items used to measure each of the constructs in the measurement instrument (Taherdoost, 2016).

Reliability refers to the similarity of the results of measurements when an identical study is repeated. In an EFA, the coefficient alpha results are displayed as the Cronbach's Alpha coefficient. This reflects the internal consistency of the measuring instrument (Taherdoost, 2016). Typically, Cronbach's Alpha values range between 0.00 and 1.00. The greater the results of the coefficient, the greater the level of reliability. Results greater than 0.7 are considered acceptable (Taherdoost, 2016). The EFA is then used to assess construct validity, revealing the "degree to which the items in the measurement instrument accurately measure the factors" (Cooper & Schindler, 2014). Therefore, an EFA is a statistical test that can be used to confirm that questionnaire items designated to measure a particular factor in the conceptual model do so effectively. When measuring construct validity with the EFA, the discriminant and convergent validity are also examined. Discriminant validity establishes whether conceptual model constructs that should not have any correlation do not have any correlation (Taherdoost, 2016). In contrast, convergent validity confirms whether hypothesized related constructs are indeed related (Taherdoost, 2016).

This is accomplished by demonstrating the level of correlation between the items and the elements using the EFA-produced factor loading results (Taherdoost, 2016).

3.10.1 Reliability

A reliability test measures how consistently a measurement tool performs when used two or more times under identical circumstances (Fawns-Ritchie and Deary ,2020). Validity assesses how accurately a measurement tool captures the intended outcome (Rose, & Johnson, 2020). According to Rose and Johnson, 2020, a construct is considered reliable if it meets the minimal 0.7 Cronbach's Alpha requirement. At the same time, when factor analysis reaches a minimum threshold of 0.4, items in the measurement tool are regarded as valid. The results in Table 3.1 below signify values ranging from 0.757 to 0.859. The constructs namely, technological factors, organisational factors and external environmental factors, and business performance had acceptable Cronbach's Alpha between 0.757 to 0.859.

Item	Number of items	Cronbach alpha (α)
Technological factors	5	.859
Organisational factors	5	.846
External environment factors	5	.757
Business performance	4	.773
All constructs	19	.809

Table 3.1: Cronbach Alpha

3.11 Ethical considerations

Before a study can be conducted involving human participants, Wits Business School stipulates that an application for approval from the human research ethics committee must be submitted. Prior to data collection, the researcher will seek ethical approval.

Before participating in the study, a consent form will be provided to each participant. Prior to agreeing to participate in the actual data collection, participants will be made aware of what the researcher expects of them in regard to the potential risk. Participants may withdraw from the study if they are unable to answer questions as truthfully as possible. Throughout the research process, confidentiality and anonymity will be upheld. The researcher will reassure participants

that any information they provide for the study is secure and that no unauthorized parties will gain access to it. Participants will also be assured that, upon request, copies of the findings will be made available to them.

3.12 Conclusion

This chapter examined how the research was conducted. Chapter 3 examines the various research paradigms. The research approach, research design quantitative, come next. In addition, the sampling method, population, and sample size were employed in this study. Lastly, a discussion on the acquisition and analysis of data.

Chapter 4: PRESENTATION OF THE RESULTS

4.1. Introduction

The focus of the discussion in the preceding chapter was the research methodology that was employed to operationalize the study. The current chapter provides the empirical results obtained from the data collection process that aims to realise the objective of the study. This chapter consists of four (4) main sections. Firstly, the results of the descriptive statistics, the inferential results are provided, which include the structural model assessment. Thereafter, the hypothesis results with a summary of the hypotheses testing results in a table format are discussed. Lastly, a chapter summary is provided.

Included is a summary of both the descriptive and inferential analysis. Firstly, the analysis of the demographic data revealed further details about the respondents who participated in the research. Frequency tables were utilized as descriptive tests. Furthermore, the demographic data contained in the frequency tables included the respondents' sex and province.

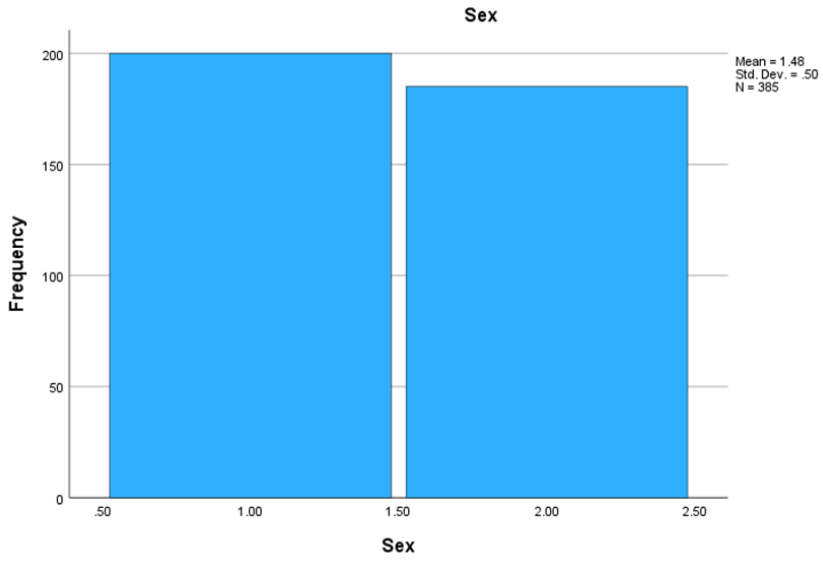
4.2. Descriptive analysis of the demographics of respondents

4.2.1. Frequency table

This study was carried out from a sample of 385 respondents.

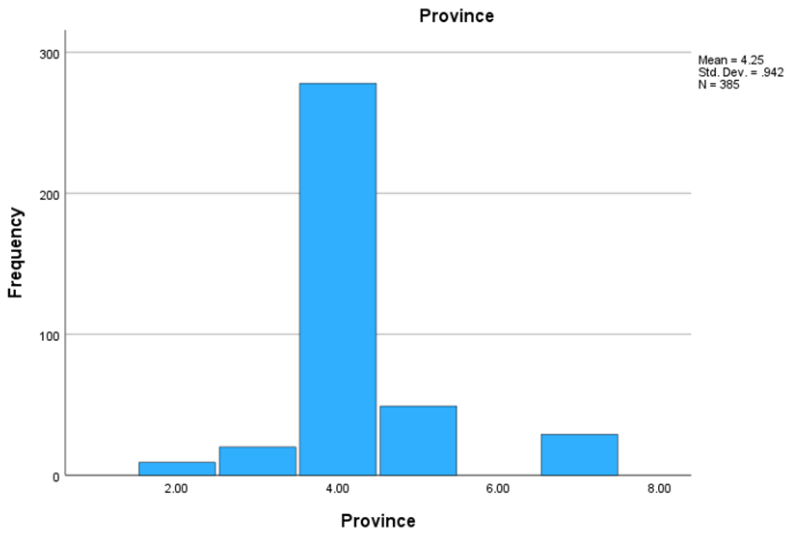
4.2.2. Sex

Figure 4.1. depicts the gender distribution of the respondents. The results show that about 51.9% of the respondents were male, while 48.1% of the respondents were female.



4.2.3. Prov

Figure 4.2 and Table 4.3 contain an overview of the respondent provinces. Of the 385 respondents, 2.3% indicated that they reside in Limpopo. 5.2 % of the respondents revealed that they are from the Northwest province. The majority of the respondents indicated that they reside in Gauteng, with a percentage of 72.2%, while 12.7 % of the respondents are from the Western Cape and 7.5% from Eastern Cape.



4.3. Reliability and validity of the measurement instrument

The measurement model needs to be evaluated for its validity and reliability before the hypotheses may be tested. With the aid of Cronbach's alpha results, the measurement model's variables are first tested for reliability. Thereafter, the results of the Kaiser-Meyer-Olkin and Bartlett's test will show whether the data is acceptable for exploratory factor analysis. An

Province

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Limpopo	9	2.3	2.3	2.3
	North West	20	5.2	5.2	7.5
	Gauteng	278	72.2	72.2	79.7
	Western Cape	49	12.7	12.7	92.5
	Eastern Cape	29	7.5	7.5	100.0
	Total	385	100.0	100.0	

exploratory factor analysis (EFS) can be conducted if all the preceding tests confirm reliability.

4.3.1 Rotated Factor Loading Matrix

For the investigation, a principal component analysis using Direct Oblimin was performed. A value of 0.3 was employed to determine whether a variable contributes significantly to the component. According to Pallant (2020), an absolute value of 0.3 is acceptable, and any component value less than 0.3 cannot be measured accurately. The total number of derived factors was four. All elements are measured by or contribute to their respective Components. In the end, 92.806 percent of the total variance was explained.

Table 4.5: Rotated Factor Loading Matrix

Rotated Factor Loading Matrix				
Factor description	Component			
	1	2	3	4

Technology				
T1	.914			
T2	.914			
T3	.751			
T4	.684			
T5	.904			
Organisational				
O1		.795		
O2		.777		
O3		.753		
O4		.540		
O5		.684		
External Environment				
EE1			.905	
EE2			.894	
EE3			.731	
EE4			.728	
EE5			.996	
Business Performance				
BP1				.996
BP2				.996
BP3				.914
BP4				.914
Eigenvalue	8.259	2.048	2.250	1.232
% Variance	55.085	16.051	15.002	8.215
Cumulative %	55.085	71.109	86.111	94.326
Extraction Method: Principal Component Analysis.		F		

Kaiser-Meyer-Olkin (KMO) sampling adequacy measurement is used to evaluate whether factor analysis is appropriate (Shrestha, 2021). The appropriateness of the factor analysis is indicated by high values (between 0.5 and 1.0), and values less than 0.5 are regarded as inappropriate (Hidayah, Utami & Fajrisani, 2020). According to Witkovský (2020) the degree of item intercorrelation is measured by Bartlett's test of sphericity (comparable to Cronbach's alpha). Similar to this, the

Bartlett technique suggests that factor analysis is appropriate when the p-value is smaller than the 0.05 significance level (Sutisna, Amriely, & Awaluddin, 2020).

Table 4.6: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.500
Bartlett's Test of Sphericity	Approx. Chi-Square	888.383
	df	1
	Sig.	<.001

4.4. Inferential statistics- Multiple regression analysis

Multiple regression analysis was conducted to test the three formulated hypotheses in this study. The R-value, R-square value, Beta (β) and the p-value were employed to measure the hypotheses. The R-value measured the correlation and the direction of the relationship between the independent and the dependent construct and the p-value was employed to measure the significance of the results. The R- square value indicated the amount of change in the dependent construct, that can be attributed to the independent construct. Results with a p-value equal to or less than 0.05 were regarded as significant. The three hypotheses were tested in the next section as follows:

4.4.1. Hypothesis 1 (H1): Positive influence of technological factors on business performance.

It was hypothesized in H1 that there is a statistically significant relationship between technological factors and business performance. Based on the multiple regression analysis results (R-value = .938; R-square = .966; p-value = 0.001). In table 4.6, H1 is accepted at p-value < 0.001 statistically significant level. This finding provides evidence that there is a statistically significant relationship between technological factors and business performance, and the hypothesis was therefore accepted.

4.4.2. Hypothesis 2 (H2): Positive impact of organizational factors on business performance.

The hypothesis that there is a positive and significant relationship between organisational factors and business performance was found statistically significant and the outcomes were accepted at p-value < 0.001 based on the multiple regression analysis results (R-value = .983; R-square = .966; p-value = 0.001) shown in Table 4.7 below. The study's findings present that there is a statistically significant relationship between organisational factors and business performance.

4.4.3. Hypothesis 3 (H3): Positive impact of external environmental factors on business performance.

Hypothesis 3 (H3) was formulated as there is a statistically significant relationship between product quality and brand love outcomes are accepted at a p-value < .001 significant level. The decision to accept H3 was made based on multiple regression analysis results (R-value = .983; R-square = .966; p-value = 0.001). It is therefore evident that there is a statistically significant relationship between external environmental factors and business performance.

Hypothesis	Dependent variable	Independent variable	Relationship	Accept/reject	Standard Coefficient B-value	p-value*	r-square value	Lower limit	Upper limit
H1	Business performance	Technological factors	+	Accept	-2.531	< 0,001	.966	-1.789	-1.652
H2	Business performance	Organisational factors	+	Accept	2.473	< 0,001	.966	2.577	2.741
H3	Business performance	External environmental factors	+	Accept	1.132	< 0,001	.966	.891	.962

4.5 Conclusion

The findings of the statistical analysis of the data gathered for this study were reported in this chapter. Additionally, the findings of both the descriptive and inferential analyses were reported. Multiple regression analyses were conducted to test the proposed hypotheses, which resulted in all three hypotheses being accepted. The next chapter will present the conclusions and recommendations of the study based on the findings discussed.

Chapter 5: CONCLUSION AND RECOMMENDATION

5.1. Introduction

The previous chapter presented and discussed findings from data analysis made in line with the research objectives. This chapter, chapter 5, contains an overview of the conclusions and recommendations that emanate from the study. The current chapter is organized as follows: the theoretical objectives, empirical objectives, the theoretical contributions of the study, managerial

implications, limitations of the research, recommendations for future researchers, and chapter conclusion.

5.2. Theoretical objectives

Objective 1: To review the literature on the technology organizational and environmental model.

Objective 2: To review the literature on dynamic capabilities theory.

5.3. Empirical objectives

Objective 1: To investigate the impact of technological factors on business performance among SMEs.

This objective was covered in Chapter 4. Using correlation and regression analysis, the study discovered that technological factors do have a positive impact on business performance among SMEs.

Objective 2: To investigate the impact of organizational factors on business performance among SMEs.

Based on the examination of the findings in Chapter 4, it was found that organizational factors have a significant impact on business performance among SMEs. These results were obtained by correlation and regression analysis.

Objective 3: To investigate the impact of external environmental factors on business performance among SMEs.

The objective was covered in Chapter 4. Using correlation and regression analysis, the study discovered that external environmental factors have a considerable impact on business performance among SMEs.

5.4. Theoretical contributions

Similar researchers tend to focus on the usage of adoption, but there is a dearth of studies that have investigated the influence of ICT adoption by SMEs. As a result, the current study adds significantly to the current corpus of knowledge already in the business field. The study made use

of the TOE model, the technological factors, organisational factors, and external environmental factors in determining whether or not its subcontracts had a substantial impact on ICT adoption.

5.5. Managerial implications

The findings of the study have significant implications for SME managers and owners who are driving ICT adoption in their businesses. This study aims to educate managers on the importance of external assistance for SMEs, particularly those lacking the competencies, skills, or an ICT division within their organizations.

Adoption of ICT gives SMEs access to real-time data, advanced analytics, and reporting tools. This enables managers to make informed decisions based on current and accurate data. Managers should focus on developing data-driven decision-making capabilities and ensuring that employees have the necessary skills to interpret and analyse data in order to capitalize on this advantage.

5.6. Limitations of the study

The study has a restriction, notably during the data-gathering phase. The results of the study are based on a sample size of 385 respondents, and this makes it difficult to generalize the results to the context of South Africa. Furthermore, it is imperative to note that this study was carried out using only quantitative research methodology; therefore, respondents were not able to provide comprehensive feedback.

5.7. Recommendations for future researchers

The consequences of SMEs' lack of ICT adoption should be investigated. Because most study focuses on the advantages of adoption, there is a need to investigate the downsides of not adopting ICT. One of the proposals for further research is to retest the findings in additional Southern African Development Community countries. This will help detect patterns or inconsistencies. In the future, it would be beneficial to investigate the issue using a mixed-method approach in order to obtain diverse perspectives on the research.

Future researchers should think about using a mixed-method approach. The usage of a mixed method approach helps to ensure that the advantages of both quantitative and qualitative techniques are utilised, which may result in the research providing for a more in-depth

perspective. Future researchers should explore using a longitudinal strategy to detect any potential changes in respondents' perceptions that are expected to develop over time.

5.8. Conclusion

Chapter 5 concludes the research. It contextualized the hypothesis findings in Chapter 4. Furthermore, the chapter highlighted the theoretical contribution of the study to the body literature, as well as providing the managerial implications of the study, followed by the limitations of the study. Finally, consider the recommendations for future researchers.

The following are the study's main limitations. First off, while this study concentrated on the variables that affect the adoption of a certain set of systems and ICT by SMEs (e.g., ERP, CRM, SCM, and eProcurement), it did not distinguish between variables that affect each of these systems separately.

Second, it is challenging to extrapolate the study's findings to other countries in Africa regions due to its narrow geographic focus. Examining ITC uptake from a cross-national angle would be fascinating. Third, the pre-adoption stage of the ICT innovation/diffusion process was the main emphasis of this study. Post-adoption periods should also be investigated in order to have a more comprehensive picture. Fourth, only few industries were the subject of this investigation. It would be intriguing to observe if businesses in different economic areas are affected by the identical elements. Future research should experimentally investigate the factors influencing the adoption of these technologies and how they differ from the findings presented in this study, given the recent popularity of hosted software applications and ICT adoption (Lockett et al., 2006).

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Appendix A: Consent form and Research instrument

Dear Respondent,

My name is Alson Manyama. Master of digital business student at Wits Business School. I'm conducting an investigation, and my research seeks to determine the effect of ICT adoption on business performance among South African small and medium-sized enterprises.

This investigation will contribute to scientific knowledge and will serve no other function. Please assist by filling the confidential questionnaire. It will take +/- 15 minutes of your time. Participation is entirely voluntary and confidential.

Thank you

Best regards,

Alson Manyama

Section A

PLEASE TICK THE APPROPRIATE BOX

Strongly Disagree 1 **Disagree 2** **Unsure 3** **Agree 4** **Strongly Agree 5**

Technology

Perceived simplicity

Less specialized skills and training in using it

Learning with ease

Fit between the new and existing technologies

Fit between the new systems and existing work procedures

Organization

Top management support

Resource strengths

Skills and experiences

Number of employees

Scope of business operations

External Environment

Normative pressure

Regulations on technical assistance and partnership

Safety provision and staff insurance

Environmental impact factor compliance

Policies and regulations

Mimetic pressure

Business Performance

Reduced operating costs

Improved operational efficiency

Improved customer service

Reaching new customers

PLEASE TICK THE APPROPRIATE BOX

Demographic Details

1. Please indicate your sex. (Please tick one)

Male	1.
Female	2.

1. Please specify which province your business is from.

Kwa – Zulu Natal	1.
Gauteng	2.
Northwest	3.
Limpopo	4.
Mpumalanga	5.
Free State	6.
Eastern Cape	7.
Western Cape	8.
Northern Cape	9.

Appendix B: Turnitin Report

Appendix C: Ethics Clearance Certificate

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/DB562593/734
This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

Project title	The impact of ICT adoption on business performance among SMEs in South Africa
Investigator / Researcher	Mr Alson Manyama
Nature of Project	MM (Digital Business)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed anonymity and confidentiality.
Issue Date of Certificate	2023-02-03
Expiry date	Date of submission of the project / research report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 +27 82 880 4531 ✉ anthony.stacey@wits.ac.za

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Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.