

**THE DETERMINANTS OF INFORMATION COMMUNICATIONS TECHNOLOGY
ADOPTION BY SMALL AND MEDIUM ENTERPRISES IN THE CAPRICORN
DISTRICT MUNICIPALITY**

by

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ABSTRACT

Information and communication technologies (ICT) and its impact in the economic, social and personal development has become an important object of scientific research in recent decades. Theoretical and empirical studies have demonstrated the necessity to gain and exploit positive outcomes such as productivity growth, organisation expansion, efficiency, effectiveness, competitiveness and so on of ICT adoption and implementation in various organisations. Therefore, the aim of this paper is to investigate the determinants of ICT adoption by SMEs for improved performance. The study utilised the quantitative research approach whereby a survey was conducted using convenience and snowball sampling methods. Data was tested for reliability using the Cronbach' Alpha. Furthermore, descriptive analysis was conducted as well as correlation and regression tests. The questionnaire was developed from the empirical literature review. The determinants of ICT adoption were represented by perceived ease of use, perceived usefulness, entrepreneurial orientation, entrepreneurial passion, personal factors, business characteristics and performance. Based on the results, SMEs should seek to adopt ICT using the determinants which were assessed as they show how effective a business can improve performance if these determinants are used to adopt ICT. Furthermore, more should be done by government to give support and awareness to SMEs on various aspects that can improve their businesses such as ICT.

Keywords: ICT, SMEs, Determinants, Adoption, Performance

DECLARATION

I declare that “The Determinants of Information Communications Technology Adoption by Small and Medium Enterprises in the Capricorn District Municipality” is my own work, and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references, and that this work has not been submitted before for any other degree at any other institution.

Edwards Micheletti Malvern

22 December 2020



Signature:

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Table of Contents

CHAPTER ONE	14
1.1 INTRODUCTION AND BACKGROUND	14
1.2 PROBLEM STATEMENT	15
1.3 AIM OF THE STUDY	16
1.4 OBJECTIVES OF THE STUDY	16
1.5 HYPOTHESES	16
1.6 DEFINITION OF CONCEPTS	16
1.6.1 Information Communication Technology	16
1.6.2 Small and Medium Enterprises (SMEs)	17
1.6.3 Determinants of ICT Adoption	17
1.6.4 Performance	17
1.7 LITERATURE REVIEW	17
1.7.1 Technology Acceptance Model (TAM)	17
1.7.2 Determinants of ICT Adoption by SMEs	18
1.7.2.1 Perceived ease of use	18
1.7.2.2 Perceived usefulness	18
1.7.2.3 Characteristics of Owner	19
1.7.2.3.1 Entrepreneurial Passion	19
1.7.2.3.2 Entrepreneurial Orientation	19
1.7.2.3.3 Personal Factors	19
1.7.2.4 Business Characteristics	20
1.7.2.4.1 Size and Sector	20
1.7.2.4.2 ICT dependency	20
1.7.2.4.3 Social media use	21
1.7.2.4.4 Internet accessibility	21
1.7.3 The effect of ICT adoption on SME performance	21
1.8 RESEARCH METHODOLOGY	24
1.8.1 Study Area	24
1.8.2 Research Design	24
1.8.3 Population of the study	24
1.8.4 Sample and sampling methods	24
1.8.5 Data Collection Methods	24
1.8.6 Data Collection Procedures	25

1.8.7 Data Analysis Methods	25
1.8.8 Validity and reliability of the research.....	25
1.8.8.1 Reliability.....	25
1.8.8.2 Validity of the study.....	25
1.9 ETHICAL CONSIDERATIONS.....	26
1.10 SIGNIFICANCE OF THE STUDY	27
1.11 CHAPTER OUTLINE/FORMAT OF THE STUDY	27
1.12 SUMMARY.....	28
CHAPTER TWO	30
2. SMALL AND MEDIUM ENTERPRISES IN SOUTH AFRICA.....	30
2.1 INTRODUCTION.....	30
2.2 DEFINITION OF SMEs IN SOUTH AFRICA	30
2.2.1 Definition of SMEs from an international perspective	32
2.2.1.1 Definition of SMEs in the United Kingdom of Great Britain	32
2.2.1.2 Definition of SMEs in United States of America	33
2.2.1.3 Definition of SMEs in Nigeria	34
2.2.2 Summary	34
2.3 CONTRIBUTIONS OF SMEs	34
2.3.1 Economic growth and development.....	35
2.3.2 Employment creation.....	35
2.3.3 Poverty reduction	36
2.3.4 Income inequality reduction.....	37
2.3.5 Increase government revenue.....	37
2.4 CHALLENGES FACED BY SMEs	37
2.4.1 Lack of Finance.....	38
2.4.2 High crime rate.....	39
2.4.3 Red tape.....	39
2.4.4 Corruption.....	40
2.4.5 Lack of Training and Education	41
2.4.6 Internal Environmental Factors	41
2.4.7 Managerial Competency and Skills.....	41
2.4.8 Technological Competencies	42
2.4.9 External Environmental Factors.....	42
2.4.10 Competition	42
2.4.11 Globalisation	43
2.4.12 Macroeconomic Factors	43

2.5 FAILURE OF SMEs	43
2.10 Conclusion.....	44
CHAPTER THREE	46
3. ICT ADOPTION BY SMEs IN SOUTH AFRICA.....	46
3.1 INTRODUCTION.....	46
3.1.2 Introduction Use of ICT and Customer Relationship of SMEs.....	46
3.2 CONCEPTUAL FRAMEWORK.....	47
3.3 INFORMATION COMMUNICATION TECHNOLOGY USE.....	48
3.4 TECHNOLOGY ACCEPTANCE MODEL (TAM).....	49
3.5 ICT ADOPTION IN THE SMES	49
3.5.1 DETERMINANTS INFLUENCING ADOPTION OF ICT USE	52
3.5.1.1 Perceived ease of use	52
3.5.1.2 Perceived usefulness.....	53
3.5.2 Characteristics of Owner.....	53
3.5.2.1 Entrepreneurial Passion.....	53
3.5.2.2 Entrepreneurial Orientation	54
3.5.2.3 Personal Factors.....	56
3.5.2.4 Education and ICT use.....	56
3.5.2.5 Age and ICT adoption.....	57
3.5.3 Business Characteristics.....	57
3.5.3.1 Size and Sector	57
3.5.3.2 ICT dependency.....	58
3.5.3.3 Social media use.....	59
3.5.3.4 Internet accessibility	59
3.5 IMPACT OF ICT ON SME SECTOR.....	60
3.6 IMPACT OF ICT ON ORGANISATIONAL PERFORMANCE.....	61
3.7 IMPORTANCE OF USING ICT AS A MARKETING STRATEGY	63
3.8 GOVERNMENT INTERVENTION	63
3.8 SUMMARY.....	64
CHAPTER FOUR	66
4. RESEARCH METHODOLOGY	66
4.1 INTRODUCTION.....	66
4.2 OVERVIEW OF THE RESEARCH	66
4.3 RESEARCH DESIGN	66
4.3.1 Types of research designs	68
4.3.1.1 Qualitative research.....	68

4.3.1.2 Quantitative research	68
4.3.1.3 Fused research	69
4.4 POPULATION AND SAMPLING	71
4.4.1 Population	71
4.4.2 Sampling	71
4.4.2.1 Probability sampling	72
4.4.2.2 Non-Probability sampling	74
4.5 DATA COLLECTION	75
4.5.1 Questionnaire	77
4.6 DATA ANALYSIS	79
4.6.1 Descriptive analysis	80
4.6.2 Correlation analysis	80
4.6.3 Regression analysis	81
4.7 RELIABILITY	81
4.8 VALIDITY	82
4.9 PILOT STUDY	83
4.10 ETHICAL CONSIDERATIONS	84
4.10.1 Permission to Conduct the Study	84
4.10.2 Informed Consent	84
4.10.3 Confidentiality	84
4.10.4 Voluntary Participation	85
4.11 SUMMARY	85
CHAPTER FIVE	86
5. PRESENTATION, INTERPRETATION AND DISCUSSION OF RESEARCH RESULTS	86
5.1 INTRODUCTION	86
5.2 RESPONSE RATE	86
5.2.1 Gender of Respondents	86
5.2.2 Age Distribution of Respondents	88
5.2.3 Level of Education	88
5.2.4 Business Analysis	89
5.2.4.1 Type of business	89
5.2.4.2 Industry	90
5.2.4.4 Number of employees	90
5.2.4.5 Age of the business	91
5.2.5 ICT Use	91
5.3 RELIABILITY OF TEST RESULTS	92

5.3.1 Assessing Reliability of ICT Determinants	92
5.3.1.1 Perceived ease of use.....	92
5.3.1.2 Perceived Usefulness	92
5.3.1.3 Entrepreneurial Orientation	92
5.3.1.4 Entrepreneurial Passion.....	93
5.3.1.5 Personal Factors.....	93
5.3.1.6 Business Characteristics.....	93
5.3.1.7 Performance	94
5.3.2 Reliability Test of ICT Use.....	94
5.4 NORMALITY OF DATA.....	94
5.4.1 Test of Normality	94
5.4.2 Determinants Affecting ICT Adoption.....	95
5.4.2.1 Perceived ease of use.....	95
5.4.2.2 Perceived usefulness.....	96
5.4.2.3. Entrepreneurial orientation.....	97
5.4.2.4 Entrepreneurial passion.....	99
5.4.2.5. Personal factors	100
5.4.2.6. Business characteristics	101
5.4.2.7. Performance	103
5.5 CORRELATION ANALYSIS	104
5.5.1 Correlation between ICT Use and Perceived Ease of Use.....	105
5.5.2 Correlation between ICT Use and Perceived Usefulness.....	105
5.5.3 Correlation between ICT Use and Entrepreneurial Orientation	106
5.5.4 Correlation between ICT Use and Entrepreneurial Passion.....	107
5.5.5 Correlation between ICT Use and Personal Factors	107
5.5.6 Correlation between ICT Use and Business Characteristics.....	108
5.5.7 Correlation between ICT Use and Performance	108
5.6 REGRESSION ANALYSIS.....	109
5.6.1 Relationship between Entrepreneurial Passion on ICT Adoption.....	109
5.6.1.1 Entrepreneurial passion and ICT adoption	109
5.6.1.2 Regression results for hypothesis 1	110
5.6.2 Relationship between Entrepreneurial Orientation and Adoption of ICT	111
5.6.2.1 Entrepreneurial orientation and ICT adoption	111
5.6.2.2 Regression results for hypothesis 2	112
5.6.3 Relationship between Personal Factors on ICT Adoption.....	113
5.6.3.1 Personal factors and ICT adoption.....	114

5.6.3.2 Regression results for hypothesis 3	114
5.6.4 Relationship between Perceived Usefulness and Adoption of ICT.....	116
5.6.4.1 Perceived Usefulness and ICT adoption.....	116
5.6.4.2 Regression results for hypothesis 4	117
5.6.5 Relationship between Perceived Ease of Use and Adoption of ICT.....	118
5.6.5.1 Perceived Ease of Use and ICT adoption.....	118
5.6.5.2 Regression results for hypothesis 5	119
5.6.6 Relationship between Business Characteristics and Adoption of ICT.....	120
5.6.6.1 Business Characteristics and ICT adoption	120
5.6.6.2 Regression results for hypothesis 6	121
5.6.7 Relationship between Performance and Adoption of ICT	122
5.6.7.1 Performance and ICT adoption	122
5.6.7.2 Regression results for hypothesis 7	123
5.7 SUMMARY.....	124
CHAPTER SIX.....	125
6. INTRODUCTION, SUMMARY, RECOMMENDATIONS AND CONCLUSION.....	125
6.1 SUMMARY OF FINDINGS.....	125
6.2.1 Relationship between Entrepreneurial Passion and Adoption of ICT by SMEs	125
6.2.2 Relationship between Entrepreneurial orientation and adoption of ICT by SMEs.....	126
6.2.3 Relationship between Personal Factors and Adoption of ICT by SMEs	126
6.2.4 Relationship between Perceived Usefulness and ICT adoption Among SMEs	126
6.2.5 Relationship between Perceived Ease of Use and the Adoption of ICT by SMEs	127
6.2.6 Relationship between Business Characteristics and ICT Adoption.....	127
6.2.7 Relationship between Performance and ICT Adoption	127
6.3 LIMITATIONS	128
6.4 RECOMMENDATIONS.....	128
6.4.1 Recommendations Related to Characteristics of the Owner	128
6.4.2 Recommendations Related to Perceived Usefulness	129
6.4.3 Recommendations Related to Perceived Ease of Use	129
6.4.4 Recommendations Related to Business Characteristics	129
6.4.4 Recommendations Related to Performance.....	129
6.4.5 Integrated Recommendations	130
6.5 AREAS FOR FUTURE RESEARCH.....	130
6.6 SUMMARY.....	131
REFERENCES	132
Appendix A : Questionnaire English.....	149

Appendix B : Questionnaire Sepedi	154
Appendix C : Consent Letter	160
Appendix D: Permission Letter	162
APPENDIX E : Similarity Index Report	163
APPENDIX F : Letter From English Editor	164
APPENDIX G : Faculty Approval.....	165
APPENDIX H : Ethical Clearance Certificate	166

List of Tables

Table 2. 1 Broad Quantitative definitions of SMEs in the National Small Business Act, South Africa	31
Table 2. 2 Quantitative definition of an SME in the United Kingdom.....	32
Table 2. 3 Quantitative definition of an SME in the United States of America	33
Table 2. 4 Quantitative definition of an SME in Nigeria.....	34
Table 5. 1 The response rate	86
Table 5. 2 Gender Results.....	86
Table 5. 3 Age Distribution	88
Table 5. 4 Number of employees.....	90
Table 5. 5 Age of business.....	91
Table 5. 6 Test for Reliability perceived ease of use.....	92
Table 5. 7 Test for Reliability perceived usefulness.....	92
Table 5. 8 Test for Reliability entrepreneurial orientation	92
Table 5. 9 Test for Reliability entrepreneurial passion.....	93
Table 5. 10 Test for Reliability personal factors.....	93
Table 5. 11 Test for Reliability business characteristics.....	93
Table 5. 12 Test for Reliability performance.....	94
Table 5. 13 Reliability of ICT Use.....	94
Table 5. 14 Normality Test	94
Table 5. 15 Perceived Ease of Use Normality	95
Table 5. 16 Perceived usefulness Normality.....	96
Table 5. 17 Entrepreneurial orientation Normality.....	97
Table 5. 18 Entrepreneurial passion Normality	99
Table 5. 19 Personal Factors Normality	100
Table 5. 20 Business Characteristics Normality	101
Table 5. 21 Performance Normality.....	103
Table 5. 22 ICT Use and Perceived Ease of Use	105
Table 5. 23 ICT Use and Perceived Usefulness.....	105
Table 5. 24 ICT Use and Entrepreneurial Orientation.....	106
Table 5. 25 ICT Use and Entrepreneurial Passion.....	107
Table 5. 26 ICT Use and Personal Factors	107

Table 5. 27 ICT Use and Business Characteristics	108
Table 5. 28 ICT Use and Performance.....	108
Table 5. 29 Entrepreneurial Passion and ICT Adoption.....	109
Table 5. 30 The relationship between entrepreneurial passion and adoption of ICT among SMEs.....	110
Table 5. 31: Conclusion on hypothesis 1	111
Table 5. 32 Entrepreneurship Orientation and ICT Adoption	112
Table 5. 33: Regression results on the relationship between entrepreneurial orientation and adoption of ICT among SMEs	112
Table 5. 34: Conclusion on hypothesis 2	113
Table 5. 35 Personal Factors and ICT Adoption.....	114
Table 5. 36 The relationship between personal factors and adoption of ICT among SMEs	114
Table 5. 37: Conclusion on hypothesis 3	115
Table 5. 38 Perceived Usefulness and ICT Adoption.....	116
Table 5. 39 Regression results on the relationship between perceived usefulness and adoption of ICT among SMEs	117
Table 5. 40 Conclusion on hypothesis 4	118
Table 5. 41 Perceived Ease of Use and ICT Adoption	118
Table 5. 42 Regression results on the relationship between perceived ease of use and adoption of ICT among SMEs	119
Table 5. 43 Conclusion on hypothesis 5	119
Table 5. 44 Business Characteristics and ICT Adoption	120
Table 5. 45 Regression results on the relationship between business characteristics and adoption of ICT among SMEs	121
Table 5. 46 Conclusion on hypothesis 6	122
Table 5. 47 Performance and ICT Adoption.....	122
Table 5. 48 Regression results on the relationship between performance and adoption of ICT among SMEs	123
Table 5. 49 Conclusion on hypothesis 7	123

List of Figures

Figure 1. 1 Conceptual Framework of the study.....	22
Figure 3. 1 Conceptual framework	47
Figure 5. 1 Gender distribution.....	87
Figure 5. 2 Education Level.....	88
Figure 5. 3 Type of business	89
Figure 5. 4 Sector.....	90
Figure 5. 5 ICT Use	91
Figure 5. 6 Distribution of Perceived Ease of Use.....	96
Figure 5. 7 Distribution of Perceived usefulness	97
Figure 5. 8 Distribution of Entrepreneurial Orientation	98
Figure 5. 9 Distribution of Entrepreneurial passion.....	100
Figure 5. 10 Distribution of personal factors	101
Figure 5. 11 Distribution of business characteristics	102
Figure 5. 12 Distribution of performance	104

CHAPTER ONE

1. INTRODUCTION TO THE STUDY

1.1 INTRODUCTION AND BACKGROUND

Recently most countries have started engaging in programmes that promote small and medium Enterprises (SMEs). Organisations such as the World Bank advocate for competition as it helps boost economic growth, as well as entrepreneurship which gives rise to employment and reduces poverty and income inequality (Ahmad, Abu Bakar, Faziharudean & Mohamad, 2014). Furthermore, SMEs create jobs since the focus is labour-intensive (Rashidirad, Soltani & Salimian, 2014). The eradication of poverty and the problem of inequality have been daunting tasks for the South African government since independence in 1994 (Ahmad *et al.*, 2014). One of the ways that government has tried to address these challenges is by supporting SMEs (Organisation for Economic and Co-operation Development (OECD), 2016).

Funding for SMEs has been made available through organisations such as Small Enterprise Finance Agency (SEFA) and Small Enterprise Development Agency (SEDA) under the Department of Trade and Industry. SMEs are the building blocks of an economy (Barney, 2012). 91% of all businesses in South Africa are SMEs. In addition, SMEs contribute 61% of total employment and 57% of the gross domestic product of South Africa (Statistics South Africa, 2019). This shows how important SMEs are to the growth of any country. Most economies are boosted by the SME sector.

According to a study conducted by SEDA (2019), the current failure rate of SMEs in South Africa is 71%. The South African Entrepreneurship Magazine (2015) cites some of the causes of failure as lack of basic management skills, lack of adequate market, no or poor business plan and lack of financial literacy or poor money management skills. Therefore, it is important to research factors that help SMEs to improve their performance. Mudavanhu, Bindu, Muchabaiwa and Lloyd (2011) point out that there are many reasons why small businesses fail. Failure of SMEs may be as a result of factors such as contract enforcements, crime, corruption, but not limited to the education structure that does not allow for entrepreneurship to thrive.

The adoption of information and communications technology (ICT) can positively influence the flexibility of organisations and companies. In addition, businesses that adopt ICT seem to thrive more and outperform those which do not and find it easier to differentiate products and services (Ollo-Lopez & Aramendia-Muneta, 2012). Furthermore, the use of e-mail, e-commerce and social media network has cut many costs such as advertising and physical transportation (Manochehri, Al-Esmail & Ashrafi, 2012). It is important to emphasise the importance of long-term investments in ICT because the positive impact of ICT occurs only after a period of adoption (Consoli, 2012). ICT can help an organisation to withstand challenges in the business environment (Adeniran, Tejumade, Johnston & Kevin, 2011). Knowledge of ICT should allow for the interchange of various ideas amongst various people. ICT has become vital especially to businesses as it allows for the input and exchange of knowledge. Most literature has highlighted the importance of things like “Knowledge Management System” (Mbuyisa & Leonard, 2017).

Many firms are starting to turn to ICT to combat the disadvantages of poor performance, lower productivity and poor service provision (EaP GREEN, 2016). Though ICT is more commonly known in developed countries, it is also starting to have an impact in developing countries (Barney, 2012). However, there has been little research on the adoption of ICT by SMEs in developing countries. Alam and Noor (2009) note that much of the empirical research is based on large companies and most SMEs are not aware of the advantages of ICT. ICTs offer various opportunities for SMEs by improving business-related communications, improving decision-making, making knowledge and information available and improving overall efficiency and flexibility (Torero & von Braun, 2008).

1.2 PROBLEM STATEMENT

Previous researches in the western context have shown that many factors have contributed to a low or high level of ICT adoption for improved performance of SMEs. SMEs generally have limited access to market information and suffer from globalisation constraint (Madrid-Guijarro, Garcia & van Auken, 2009). Compared with large organisations, SMEs do not perform well at organisational, managerial, technological, individual and environmental levels. Thus, ICT adoption and usage in SMEs is at a disadvantage (MacGregor & Vrazalic, 2012). Lings (2014) points out that there tends to be a very high rate of SME failure in South Africa. However, ICT can

help firms to combat the disadvantages of poor performance, lower productivity and poor service provision (EaP GREEN, 2016). This suggests that the adoption of ICT can help to improve the performance and ultimately reduce the high failure rate of SMEs in South Africa. However, empirical evidence on the adoption rate and the determinants of ICT is limited in many developing countries. Thus, this study will attempt to explore the determinants of ICT by SMEs in South Africa.

1.3 AIM OF THE STUDY

The aim of the study is to investigate the determinants of ICT adoption by SMEs for improved performance.

1.4 OBJECTIVES OF THE STUDY

The objectives of this research are to:

- Analyse whether ICT is adopted and used by SMEs.
- Investigate factors that influence ICT adoption in the SME sector.
- Assess the influence of ICT adoption on SME performance.

1.5 HYPOTHESES

H1: Entrepreneurial passion positively influences the adoption of ICT by SMEs.

H2: Entrepreneurial orientation positively affects the adoption of ICT by SMEs.

H3: Personal Factors positively impacts the adoption of ICT by SMEs.

H4: Perceived Usefulness positively affects the adoption of ICT by SMEs.

H5: Perceived Ease of Use positively affects the adoption of ICT by SMEs.

H6: Business Characteristics positively impacts the adoption of ICT by SMEs.

H7: The adoption of ICT positively impacts on the performance of SMEs.

1.6 DEFINITION OF CONCEPTS

1.6.1 Information Communication Technology

ICT is defined as an umbrella term that covers all technical means for processing and communicating information. The convergence of Information Technology and Telecom Technology gave birth to ICT. Practically speaking, ICT finds expression in digital

technology and all its uses and variants, including the computer, the internet, mobile telephony and the different electronic applications (Akunyili, 2010).

1.6.2 Small and Medium Enterprises (SMEs)

With regards to the South African National Small Business Act No. 102 of 1996 (as amended), "Small business organisation" means any entity, whether or not incorporated or registered under any law, which consists mainly of persons carrying on small business concerns in any economic sector, or which has been created for the reason of encouraging the interests of or representing small business concerns, and includes any federation consisting wholly or partly of such association, and any branch of such organisation.

1.6.3 Determinants of ICT Adoption

The determinants of adoption of ICT adoption are factors that influence firms to use ICT. These factors include perceived ease of use, perceived usefulness of ICT, entrepreneurial passion, entrepreneurial orientation, personal factors such as education, background and age, and business characteristics such as size and sector, ICT dependency, internet accessibility and social media use (Akunyili, 2010).

1.6.4 Performance

Performance in business context can be described as results of activities of a firm. Performance can be financial (profit, sales) or non-financial customer and employee satisfaction, environmental and social responsibility (Remmen, Jensen & Frydendal, 2012).

1.7 LITERATURE REVIEW

This section will focus on the theoretical and empirical literature. The theory that will be analysed and used in this study is the Technology Acceptance Model (TAM). The theory will be extended to include other constructs in order to develop a model of ICT adoption. In addition, empirical literature will review studies on the determinants of ICT adoption and performance.

1.7.1 Technology Acceptance Model (TAM)

This theory focuses on how social and individual decision-making concepts allow users to decide whether to adopt technology (Davis, 1989). The TAM suggests that when a person or individual is offered technology, there are factors that influence them

as to when and how they use this technology (Manueli, Latu & Koh, 2007). These factors are perceived ease of use and perceived usefulness. This theory was introduced by Davis (1989) and helps understand why technology is adopted by businesses and the use of the internet. Thus, many scholars have made use of the theory in their studies (Forman & Goldfarb, 2006).

The technology Adoption Model (TAM) has been a model that is mostly used to study how users accept the use of ICT. It mostly relates to individuals adopting and using the internet as a basis supported by the information systems theory (Gibbs *et al.*, 2007). This theory allows us to understand what leads individuals to adopt and ultimately use ICT. In a study that he once conducted on mobile internet services, Pedersen (2005) shows that there is an important correlation between perceived usefulness of the technology and external factors such as additional money households must spend (Ghobakhloo, 2011).

1.7.2 Determinants of ICT Adoption by SMEs

1.7.2.1 Perceived ease of use

Perceived ease of use can be defined as how easy ICT is to use to certain individuals. Studies have shown that the perceived ease of use relates positively to users' attitudes and the effortlessness of using the system (Ho, Wong & Lee, 2011). Perceived ease of use with regards to online learning, for example, goes to show how individuals have a positive attitude towards E-learning (Wu & Zhang, 2014). Furthermore, perceived ease of use could also influence the adoption of ICT directly or indirectly through perceived usefulness.

1.7.2.2 Perceived usefulness

Perceived usefulness explains how using a certain system by an individual enhances their job performance (Davis *et al.*, 1989). The perceived usefulness of ICT can be shown as the impact of ICT to a person achieving increased profitability or revenue. Perceived usefulness basically shows how an individual's attitude is towards ICT and their continued use of it (Lee *et al.*, 2013). Moreover, perceived usefulness seems to explain the effect of perceived ease of use on how an individual behaves, which is a relationship that has been supported by many empirical studies. In the ICT literature, for example, it was viewed widely that ICT, to a greater extent, influences perceived usefulness (Alraimi, Hangjung, Zo & Ciganek, 2015).

1.7.2.3 Characteristics of Owner

The characteristics of the owner can be described as the personal attributes of owners that can influence their behaviour. In the context of this study, the characteristics of the owner refers to attributes of owners of SMEs that can influence the adoption of ICT.

1.7.2.3.1 Entrepreneurial Passion

Entrepreneurial passion is a motivational construct characterised by how emotional an individual is and how driven they are through the engagement with personally meaningful work, which is key to the self-identity of the entrepreneur (Baron, 2008). Entrepreneurs with a strong passion are more motivated, persuasive, have larger social networks and more social capital (Ghobakhloo, 2011). Therefore, an entrepreneur who is passionate will seek more modern and inventive ways to grow their business or increase profitability, and one such way is through the use of ICT.

1.7.2.3.2 Entrepreneurial Orientation

Entrepreneurial orientation (EO) is a strategy that is used by some firms to portray an organisation's managerial philosophies, how the firm behaves with regards to its entrepreneurial nature, and the strategy-making process (Wales & William, 2015). Entrepreneurial orientation has become key to most researchers with regard to entrepreneurship literature (Covin & Wales, 2011). The inclusion of proactiveness, innovativeness and risk taking as important aspects of EO have become very significant to its orientation (Wales & William, 2013). EO has become important in showing how a firm performs, as it greatly speaks to the leadership style of the business owner (Wales & William, 2015). Hence EO has a positive relationship with a business owner adopting ICT.

1.7.2.3.3 Personal Factors

Personal factors speak to the educational background of the entrepreneur, the age as well as their personal background. The type or level of education received shows how quick an individual can grasp ICT and its implementation in order to increase performance (Covin & Wales, 2011). Furthermore, age also plays a role because ICT is constantly revolving. The younger generation understand its applications more than the older generations, hence the younger the owner the more they are likely to adopt ICT. Lastly, the type of personal background also affects ICT adoption, because depending on what environment the owner is exposed to in terms of technological

aspects, this will most likely lead them to value its principles and influence them to adopt it (Wu & Zhang, 2014).

1.7.2.4 Business Characteristics

Business characteristics can be defined as attributes that are peculiar to enterprises and can influence their behaviour and decisions. In the context of this study, business characteristics are attributes of SMEs that can influence the adoption of ICT.

1.7.2.4.1 Size and Sector

The size and sector are factors that affect whether a business adopts ICT because if the firm is too small, it might not have the necessary resources to implement ICT as a way to increase performance since it might be costly to do so, also the sector in which the business will also influence adoption of ICT as a way of increasing competitive advantage (Lee *et al.*, 2013). It has become important for small businesses to not only perform in domestic settings, but to participate globally. Failure for small businesses to expand or participate globally could result in them crumbling as it has become more necessary for them to do so. In order for businesses to succeed, gone are the days when they are limited by borders. However, going global can present its own challenges and strain a small company (Scarborough, Wilson & Zimmerer, 2009). Though this has been happening for a while, most small businesses are expanding internationally, creating global opportunities and competition that did not exist even a few years ago. With the amazing rate at which economies such as that of China and India are growing, it would not make much sense for small businesses to consider expanding internationally (Longenecker, 2012).

1.7.2.4.2 ICT dependency

The more the business is dependent on ICT, the more it is more likely to adopt ICT, as it uses it more frequently as part of its operations (Ghobakhloo, 2011). One of the key reasons why small businesses are failing to grow despite support from government is because most of them are failing to embrace technology (Arinaitwe, 2006). Without technology, it is virtually impossible for small businesses to see any meaningful growth or compete with other businesses. Besides great technological advancements, some SMEs still do not see the value of adopting technology and its implementation thereof (Arinaitwe, 2006). Many SMEs face challenges of upgrading their technology, and in the long-term produce quality products or services. Due to low scale production by most SMEs, which then affects their ability to reduce costs of

products and ultimately upgrade to meaningful technology, this then becomes a great obstacle (Singh, Garg & Deshmukh, 2010).

1.7.2.4.3 Social media use

Most small businesses are using social media tools such as Facebook, WhatsApp, and twitter as a way of marketing and reaching out to a greater market (Lee & Kozar, 2012). Furthermore, such tools have proved to be less costly and more effective in increasing revenue as well as awareness on businesses' products and services. Thus, more small businesses are more likely to adopt ICT because of this (Mbuyisa, 2017). Studies in the United States of America (USA) and the United Kingdom (UK) indicate that factors such as age, geographic location and firm innovativeness have a significant impact on social media tools such as Twitter (Wamba & Carter, 2013).

1.7.2.4.4 Internet accessibility

Internet accessibility is also a key factor in adopting ICT because using the internet will depend on whether the business is in a location that can allow it to access internet services in terms of geographical location, as well as the cost of having such a service. The use of certain technology depends highly on the infrastructure to support such technologies, even though most SMEs have basic communication tools (May, Waema & Bjåstad, 2014). Compatibility is also another factor for the adoption of innovation by SMEs (Wang *et al.*, 2010). When certain technology has a positive impact on a business, that business will tend to use it in such a way that will benefit that business. Whether or not a business decides on accessing the internet or having internet services depends largely on whether the business is compatible with such services.

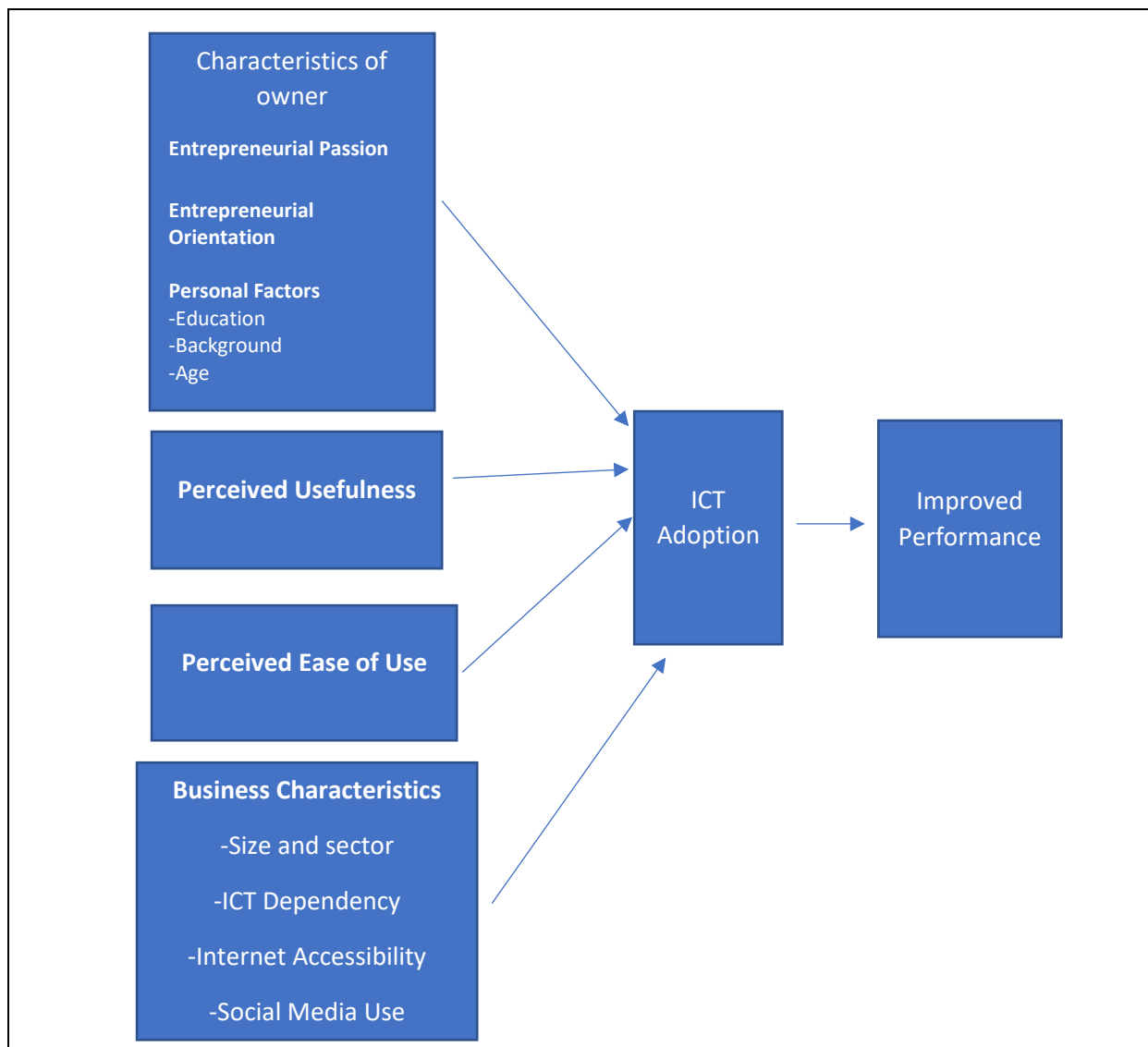
1.7.3 The effect of ICT adoption on SME performance

Performance is a major driver of ICT adoption. Consoli (2012) suggests that there are various factors that are influenced by ICT on the performance of SMEs. These include factors such as competitiveness, innovative business, effectiveness, efficiency and intangible benefits. ICT greatly impacts and influences businesses to perform better economically and could be characterised by a high level of productivity and incorporating or adopting technology. ICT also has an important social impact (Matei & Savulescu, 2012). For instance, Consoli (2012) and Santos and Brito (2012) highlight dimensions of financial performance, mainly profitability as well as effectiveness and efficiency. Market value and growth therefore cover the same financial indication of performance.

Alam and Noor (2009) confirm that factors such as market share, profitability, market value and productivity have a positive impact on ICT and the overall performance of the business. Also, the same study revealed that ICT has an impact on performance measures such as service quality, flexibility, cost savings and customer satisfaction. Therefore, strategic performance can as a result be said to affect ICTs indirectly. Communication improvement that comes about as a result of adopting ICT can result in better operational performance (Bayo-Moriones, Billon & Lera-Lopez, 2013).

Figure 1 depicts the conceptual framework of the study

Figure 1. 1 Conceptual Framework of the study



(Source: Author's conceptualisation, 2020)

The determinants to be focused on are depicted in Figure 1. There are various variables or determinants that affect the adaptation of ICT by SMEs. These independent variables such as characteristics of the owner, which include entrepreneurial passion and personal factors, as well as business characteristics such as size and sector and ICT dependency, to mention a few, as highlighted in the model above, have a direct impact on the level of ICT use by SMEs which in turn leads to improved performance.

1.8 RESEARCH METHODOLOGY

1.8.1 Study Area

The researcher will focus on SMEs in Capricorn District Municipality. The reason for focusing on Capricorn Municipality is because the municipality is both the economic hub and administrative capital of Polokwane. The majority of firms in the province are located in the municipality (South African Cities Network, 2015). This provides the researcher with a high probability of getting the necessary data of the study.

1.8.2 Research Design

The study will utilise the quantitative research approach with the causal research design. Data will be collected through the cross-sectional survey approach.

1.8.3 Population of the study

The population of this study will consist of SMEs in Capricorn District Municipality. The target population is mostly SMEs in Polokwane as it is the economic hub of the district. However, it was difficult to get the population frame of all SMEs of the study area because there is no database of all SMEs in Municipality.

1.8.4 Sample and sampling methods

There are two sampling methods namely, probability sampling and non-probability sampling. Babbie and Mouton (2011) describe probability sampling, which is also known as random sampling, as sampling based on the concept of random selection, while non-probability samples are instances where the chances of selecting members from the population in the sample are unknown. Non-probability sampling depends on the discretion of the researcher. Non-probability methods include judgemental sampling, purposive sampling, convenience sampling, quota sampling and snowball sampling. The researcher chose to use the non-probability sampling in this study. The sample is based on convenience and snowball methods, which have been chosen because the researcher could not get a complete list of all small and medium businesses in the Capricorn District Municipality. The sample size was 360 SMEs. Goodman (2011) agrees that the snowball sampling method is used to sample hard-to-reach populations.

1.8.5 Data Collection Methods

For the purpose of this study, self-administered questionnaires using the survey method will be used to collect data. A survey is one of the methods used to collect a

large amount of data. A self-administered questionnaire is the most commonly used method of gathering information about the use and the user. The researcher chose self-administered questionnaires to collect data because they are easy to prepare and less expensive to reach out to people at the same time.

1.8.6 Data Collection Procedures

The questionnaires will be distributed to owners or managers of the sample of SMEs in study area. Self-administered questionnaires will be administrated to collect the relevant information. The questionnaire comprises both closed questions to enhance uniformity and open-ended questions to ensure that maximum data is used. The questionnaires will be administered on a “drop and pick-later” basis.

1.8.7 Data Analysis Methods

The researcher will make use of the Statistical Package for the Social Sciences (SPSS) to analyse the data. Analysis will include descriptive analysis, Pearson correlation and regression analysis. Descriptive analysis is important in conducting statistical analysis. It gives the researcher an idea of the distribution of data, helps to detect outliers, and enables the identification of associations among variables, making it easy to conduct further statistical analyses. Correlation and regression will be used to test associations and relationships amongst variables.

1.8.8 Validity and reliability of the research

1.8.8.1 Reliability

For the purpose of this study, the internal consistency of the constructs will be established by computing the Cronbach's Alpha coefficients. The coefficients should be above the recommended 0.7 as this indicates that the research instrument is reliable. Thus, the Cronbach's alpha will be used to measure the reliability of the study.

1.8.8.2 Validity of the study

Validity examines whether the research measured what is was meant to measure. Also, it checks whether the instrument used reflected accurately the constructs of what was measured.

- Construct validity is the level to which scores show the required construct not any other. For the purpose of this study, construct validity will be ensured by using theoretical concepts and the psychometric property of measures used in similar empirical studies.

- Content validity was determined by pre-testing the questionnaire and the supervisor going through it and basing the questionnaire on accepted theoretical assumptions and principles.

1.9 ETHICAL CONSIDERATIONS

Study participants will be informed about the purpose of the investigation and that information obtained will be used for research purposes only. Participants in the survey will be assured strict confidentiality in order to obtain the necessary information. Participation will be voluntary. The researcher will assure participants that anonymity will be maintained. Thus, names of participants will not be included in the questionnaire. All this information will be stated on the cover page of the questionnaire. Approval of the questionnaire will be obtained from Turfloop Research Ethics Committee (TREC) before data collection.

- Voluntary participation: participants will be asked to volunteer their participation to ensure that they are not forced in any way. They will not be coerced or forced to participate in the survey and will not be paid for participating in the survey. Also, participants can withdraw at time from participating in the survey without any negative consequences. The consent letter will contain this information.
- Confidentiality of information and anonymity of participants: The researcher will protect the identities of all participants who will take part in the research. All information obtained from participants will be passworded and kept in locked cabinets. The confidentiality of the information shared will be observed. Anonymity: The researcher will ensure anonymity by not collecting any unique identifiers of participants (e.g., name, address, email address, phone number). The identities of participants will never be revealed to a third party. The consent letter and the cover page of the questionnaire will contain information on anonymity and confidentiality.
- Informed consent: The researcher has created an informed consent form that contains information about the research requesting for consent of participants. Participants will sign informed consent forms. The informed consent form will be written in a language easily understood by participants. It will minimise the

possibility of coercion or undue influence, and participants will be given enough time to consider participation.

- **Respect and dignity:** The researcher will recognise that each person has the right and capacity to make his or her own decisions. By respecting the participant, the researcher ensures that dignity is valued. The researcher will be polite and not be forceful in his dealings with participants. All participants will be treated fairly and equally by being given the same questionnaire to complete.
- **Risk and harm:** There are no probability of risk and harm (physical, psychological, social, legal, or economic) as a result of participating in this study.
- **Permission letter:** The researcher has developed a permission letter that will be given to the owner or manager of SMEs to request for their permission to conduct the survey. Permission will be obtained before the questionnaire is distributed.

1.10 SIGNIFICANCE OF THE STUDY

The study is significant as it intends to generate empirical findings on the relationship between ICT adoption, factors that influence such adoption and change in the performance of SMEs from the South African perspective. The results of the study will add to the body of knowledge in the field of ICT adoption by SMEs. In the light of the contribution of SME sector and their high failure rate in South Africa, it is important to find out factors that can lead to their improved performance. The findings of the study will assist SME owners and organisations to understand those factors that can help them perform better and help grow their businesses and the economy of South Africa at large. By understanding how ICT adoption impacts on the performance of SMEs, policy makers will make use of the information to design SME support programmes and training.

1.11 CHAPTER OUTLINE/FORMAT OF THE STUDY

This study will consist of six chapters as outlined below.

Chapter one: Introduction and background to the study.

This chapter looks at the background to the study. It will highlight the objectives, problem statement, the research gap that gave birth to the study, and different hypotheses that will be examined. Moreover, the chapter will outline why the study is being done and show a preview of chapters to follow. Lastly, the chapter will also discuss in brief the literature and methodology that will be used to conduct the study.

Chapter two: Contribution of Small and Medium Enterprises.

This chapter will look at SMEs and their contribution to the socio-economic environment of South Africa. Hence, different aspects such as the development of SMEs, challenges faced by SMEs, failure rate, as well as their role towards the social wellbeing of South Africans as well as government initiatives.

Chapter three: Information Communications Technology Adoption

This chapter will review both theoretical and empirical literature on the theory technology acceptance model (TAM) and determinants of ICT adoption. It will also discuss the impact of ICT adoption on SME performance

Chapter four: Research Methodology.

This chapter describes the research methodology. The chapter focuses on the research design, the population, sample of the study, data collection and analysis methods. In addition, the reliability and validity of the research instrument is discussed. The purpose of this chapter is to present and interpret empirical findings of this research.

Chapter five: Research Results

The purpose of this chapter is to present and interpret empirical findings of this research.

Chapter Six: Conclusions and recommendations.

The recommendations will be discussed. In addition, the limitations of the study and areas for future research will be stated.

1.12 SUMMARY

The background was outlined by highlighting some of their major benefits to economies, particularly South Africa. A brief literature review was undertaken to identify the research gap. Furthermore, the problem statement, research questions, research aim, and objectives and hypotheses were outlined, indicating how the research problem is to be addressed. This chapter outlined the gap in the literature together with the theory related to the study. The chapter also discussed the significance and contribution of the study by justifying its relevance to the empirical

literature on determinants of ICT adoption. Ethical considerations were noted, and an outline of the study chapters was provided. The chapter outline provides guidance to readers on the direction of this thesis. The definitions, contributions and challenges faced by SMEs will be reviewed in the next chapter. The next chapter discusses small and medium enterprises (SMEs).

CHAPTER TWO

2. SMALL AND MEDIUM ENTERPRISES IN SOUTH AFRICA

2.1 INTRODUCTION

Small and medium enterprises (SMEs) play an important role in the economies of countries around the world. They are vital to the development of the economy and boosting of social challenges faced by the citizens of these countries. These challenges include but not limited to unemployment and improvement of socio-economic wellbeing. In countries such as the United States of America (USA) and Japan, more than 99% of all businesses are SMEs. In the European Union, SMEs represent 99% of all businesses, provide two-thirds of all private sector employment and have created approximately 85% of new jobs in the past five years. In many developed countries, unemployment is low, and the economic growth is high due to the support and boost that is given to SMEs (Ayyagari *et al.*, 2007; European Union, 2018). SMEs contribute up to 40% of the gross domestic product (GDP) and 60% of total employment in developing economies (World Bank, 2018).

When looking at South Africa, SMEs account for about 34% of GDP and 60% of all employment and make up 91% of all formalised businesses. According to a study conducted by SEDA (2019), the current failure rate of SMEs in South Africa is 71%. The South African Entrepreneurship Magazine (2015) cites some of the causes of failure as lack of basic management skills, lack of an adequate market, no or poor business plan and lack of financial literacy or poor money management skills. Therefore, it is important to research factors that help SMEs to improve their performance. Mudavanhu *et al* (2011) point out that there are many reasons why small businesses fail. Failure of SMEs may be as a result of factors such as contract enforcements, crime, corruption and but not limited to education structure that does not allow for entrepreneurship to thrive. Therefore, this chapter will look at the various definitions of SMEs, the contributions, challenges, role of government, as well as failures of SMEs.

2.2 DEFINITION of SMEs IN SOUTH AFRICA

Defining an SME can be challenging, as the term includes a range of definitions globally. When defining SMEs, countries and businesses often use their own judgment, using the asset value of the company, number of people employed, and

annual turnover generated. With regards to the South African National Small Business Act No. 102 of 1996 (as amended), "Small business organisation" means any entity, whether or not incorporated or registered under any law, which consists mainly of persons carrying on small business concerns in any economic sector, or which has been created for the reason of encouraging the interests of or representing small business concerns, and includes any federation consisting wholly or partly of such association, and any branch of such organisation. In SA, the terms 'SMME' and 'SME' are used interchangeably. The National Small Business Act further subdivides small business as survivalist, micro, very small, small and medium enterprises (National Credit Regulator, 2011). In the Table below, the National Small Business Act uses the number of employees combined with the annual turnover, assets excluding fixed property, per enterprise size category to define SMEs.

Table 2. 1 Broad Quantitative definitions of SMEs in the National Small Business Act, South Africa

Definitions of SMEs given in the National Small Business Act			
Enterprise size	Number of employees	Annual turnover	Gross assets, excluding fixed property
Medium	Fewer than 100 to 200, depending on industry	Less than R4 million to R50 million, depending upon industry	Less than R2 million to R18 million, depending on industry
Small	Fewer than 50	Less than R2 million to R25 million, depending on industry	Less than R2 million to R4,5 million, depending on industry
Very small	Fewer than 10 to 20, depending on industry	Less than R200 000 to R500 000, depending on industry	Less than R150 000 to R500 000, depending on industry
Micro	Fewer than 5	Less than R150 000	Less than R100 000

Adapted from National Small Business Act (2019)

2.2.1 Definition of SMEs from an international perspective

There is no standard definition for SMEs, most countries define SMEs differently depending on annual turnover, number of employees and size of the enterprise (Organisation for Economic Co-operation and Development, 2017). For the purpose of keeping statistics, the Organisation for Economic Co-operation and Development defines SMEs as firms employing up to 249 persons, with the following breakdown: micro (1 to 9), small (10 to 49) and medium (50-249). In addition, the definitions of small business differ in developing countries such as South Africa and Nigeria in contrast to developed countries such as the United States of America and the United Kingdom of Great Britain (Zheng, O'Neill & Morrison, 2009).

2.2.1.1 Definition of SMEs in the United Kingdom of Great Britain

As stated, before, the common definition of small and medium sized enterprises is any business with fewer than 250 employees. There were 5.2 million SMEs in the UK in 2014, which was over 99% of all businesses. Micro-businesses are businesses with 0-9 employees (Business Population Estimates, 2014). There were 5.0 million micro-businesses in the UK in 2014, accounting for 96% of all businesses. Although the vast majority of businesses in the UK employ fewer than 10 people, this sort of business only accounts for 33% of employment and 19% of turnover. Large businesses with more than 250 employees accounted for less than 0.1% of businesses, but 40% of employment and 53% of turnover (Business Population Estimates, 2014).

Table 2. 2 Quantitative definition of an SME in the United Kingdom

Company category	Employees	Turnover
Medium-sized	50 < 250	≤ £ 50 m
Small	10 ≤ 50	≤ £ 10 m
Micro	0 ≤ 10	≤ £ 2 m

Source: Business Population Estimates (2014)

Table 2.2 above indicates that micro-businesses are regarded as businesses that employ less than ten persons, with an annual income of less than two million pounds. Small businesses are illuminated as enterprises that employ less than fifty persons

and with an annual income of less than ten million pounds. Medium-sized businesses are viewed as enterprises that employ less than two hundred and fifty individuals with an annual income of less than fifty million pounds (Business Population Estimates, 2014).

2.2.1.2 Definition of SMEs in United States of America

The United States Small Business Administration (2015) qualitatively defines an SME as “a concern that is organised for profit and operates primarily inside the United States of America (USA). Furthermore, the enterprise must be independently owned and operated and is not dominant in its field on a national basis”. In addition, the enterprise must make significant contribution to the economy of the USA using American materials, labour, material and payment of taxes

Table 2. 3 Quantitative definition of an SME in the United States of America

	Manufacturing and non-exporting service firms	Exporting service firms	
		Most	High value
Number of employees	<500	<500	<500
Revenue	Not applicable	<\$7m	<\$25m

Source: United States Small Business Administration (2015)

Table 2.3 shows that to be regarded as an SME in the USA, the enterprise must have less than five hundred employees. Nevertheless, in the European Union, the maximum number of employees is two hundred and fifty. SMEs in the USA must have an annual income of less than seven million US dollars and a balance sheet total of less than two hundred and fifty million US dollars depending on the industry (United States Small Business Administration, 2015). This establishes differences in the international definitions of an SME. There is a schedule of standards for the quantitative definition of an SME in the USA. The standard varies marginally depending on the industry. The size standards represent the largest size that an enterprise (including its subsidiaries

and affiliates) may be to remain classified as a small business concern (United States Small Business Administration, 2015).

2.2.1.3 Definition of SMEs in Nigeria

According to the Central Bank of Nigeria (2015), quantitative factors are used to provide the definition of SMEs in Nigeria. Table 2.5 depicts the definition of SMEs in Nigeria.

Table 2. 4 Quantitative definition of an SME in Nigeria

Size	Number of Employees	Total cost not including working capital but excluding land
Micro	1-10	Less than N1m
Small	11-35	N1m to less than N40 m
Medium	36-100	N40m to less than N200m
Large	101 and above	N200m and above

Source: Central Bank of Nigeria (2015)

As shown again in the table above, micro businesses in Nigeria range from 1-10, small businesses range from 11-35, medium range from 39-100 and large are from 101 and above. As shown above, this shows that SME definitions differ depending on the country, but common factors are those of size, number of workers and annual turnover.

2.2.2 Summary

An analysis of different definitions of SMEs from international and local perspectives reveals that it is very difficult to arrive at a common definition. This demonstrates that there is no common accepted definition of SMEs. Depending on the country and industry, business size, assets and products, the definitions will continue to vary.

2.3 CONTRIBUTIONS OF SMEs

SMEs are highly regarded globally because of their undeniable role towards boosting economic activities in any nation (Asgary, Ozdemir & Özyürek, 2020). There is consensus that SMEs play an important role in both developing and developed

countries. They account for approximately 99.8% of all businesses, while in Japan this sector accounts for approximately 99.7% of all businesses (European Commission, 2015; Mbuyisa & Leonard, 2017; Yoshino & Taghizadeh-Hesary, 2018; Asgary *et al.*, 2020). This clearly shows that SMEs are very important and can propel any economy in any context. Based on the above, one can say that SMEs also contribute towards a vibrant private sector. It is difficult for large businesses to flourish if there are no SMEs. This is because SMEs can be subcontracted to produce components and parts used by large organisations. The following section will discuss the importance of SMEs towards superior economic performance.

2.3.1 Economic growth and development

SMEs critically enhance economic growth and development (Bouazza *et al.*, 2015). This important role has won the attention of policy makers globally. Since most African countries are on a path to a rapid economic growth, SMEs are recognised as a crucial force to make that goal a success. Recently, the South African government has made remarkable strides to assist SMEs because of their critical role towards economic growth (Department of Small Business Development Strategic Plan, 2015-2019). Susman (2017) is of the view that SMEs have an undisputed potential to transform the economy of South Africa. Ayandibu and Houghton (2017) note that SMEs significantly contribute towards local economic development, which translates into the overall economic growth of a country. This is because SMEs are innovative, numerous and flexible enough to adapt to changes required to attain economic growth in South Africa. With the recent trend in the collapse of large companies such as Basil Read, Group Five, KPMG and the downsizing by companies such as Standard Bank, among others, there is hope that SMEs can rejuvenate the economy of the country.

2.3.2 Employment creation

South Africa has one of the highest unemployment in the world, yet the country is unable to create decent jobs for its people, especially the youth (World Bank Report, 2018). SMEs are credited for their capacity to employ local citizens of a country (Ayandibu & Houghton, 2017). This reduces unemployment, which is among the worst problems faced in developing countries. The same study further acknowledges that SMEs employ semi-skilled employees who find it difficult to penetrate the formal sector. Such a practice creates a balance and broadens the middle class in the context of developing countries. New business plays a crucial role in job creation (Fatoki,

2014). It follows that countries with a high rate of new business creation experience low unemployment. This has been witnessed in high growth-oriented economies such as China and the US, among others. Ayandibu and Houghton (2017) share the view that SMEs use mostly labour-intensive methods of production, which increases the demand for more workers.

In addition, in most countries, SMEs make up the majority of businesses, which makes them to be a vibrant source for job creation. For instance, in South Africa, SMEs constitute 90% of all formal businesses (Small Enterprises Development Agency (SEDA), 2012). Based on this, the South African government expects exponential growth in employment on this sector yearly. This is evidenced by emphasis and resources channelled towards SMEs development in South Africa in both the President's state of the nation address (SONA) and the minister of finance's 2020 budget speech.

2.3.3 Poverty reduction

Existing studies indicate that South Africa's poverty level is extremely high compared to the world average (World Bank Report, 2018). It is understood that when one family member is employed, the benefits tend to be enjoyed by everyone who is a dependent of the employee. In Africa, SMEs have managed to reduce poverty significantly (Ayandibu & Houghton, 2017) because they tend to operate in rural areas and employ disadvantaged groups such as women and the youth. On this account, SMEs are honoured for their role towards empowering people economically and giving them financial independence. Even though the country's economy is highly regarded in Africa, a significant number of its population is living in dire poverty. SMEs the world over continue to offer other means by which poverty can be reduced (Fatoki, 2014).

Currently, with the immergence of SMEs in the country, some hope is being given as households can now earn income that is above the poverty datum line. However, this is not enough, hence, it is leaving most families impoverished. In some instances, black owned small businesses have immerged in poverty-stricken townships such as Mankweng, Seshego and Soweto, among others, improving the living standards of the people. In such townships, small businesses such as hairdressing, makeup businesses, food outlets (chisanyamas) and retailing are well visible, affording residents a decent life.

2.3.4 Income inequality reduction

Income inequality is one of the common problems in South Africa (World Bank Report, 2018), and has increased since 1994, reaching a peak in 2015 when the Gini coefficient was 0.63 (World Bank Report, 2018). Based on this, South Africa's middle class is very thin, and almost half of the population is in extreme poverty (World Bank Report, 2018). South Africa is ranked among the countries with the worst income inequality in the world. The newspaper notes that 60% of the South African population gets an average of R42 000 per annum. Such a level of inequality is unbelievable given that South Africa is categorised among one of the best economies in developing countries (World Bank Report, 2018).

SMEs can play a crucial role towards reducing income inequality (Chimucheka & Mandipaka, 2015; Bushe, 2019). This is because most of these businesses are located in rural areas and townships where low-income groups stay, hence giving them a chance to increase their incomes. There is both wage and wealth inequality in South Africa. This is a barrier towards ending poverty in South Africa (World Bank Report, 2018). Furthermore, small businesses tend to employ less skilled people who cannot find jobs in the formal sector. This improves economic inclusion of previously disadvantaged groups, therefore, reducing the income inequality gap.

2.3.5 Increase government revenue

Small businesses are widely reckoned for their active role in expanding government revenue. Given that SMEs form the majority of businesses in South Africa (Bushe, 2019), this means that the government will be relieved from massive borrowing since SMEs can pay tax. The government depends largely on taxes paid by workers and businesses to attain its mandate. Besides the income tax paid to the government by SMEs, employees working for these businesses are also taxed in their personal capacities indirectly, allowing the government to increase its tax base. However, several studies point out that there is high tax evasion among SMEs. Others are of the view that SMEs cannot be relied on since their failure rate is relatively high (Bushe, 2019). This weakens the hopes to leverage on this sector to increase government revenue.

2.4 CHALLENGES FACED BY SMEs

In the efforts to establish possible solutions towards the high closure rate of small businesses, it is important to identify pressing challenges faced by this sector. Trying

to prescribe a solution to this sector without understanding their key challenges can result in confusion and stall progress in terms of workable policies to transform the sector. Existing literature points out that SMEs are confronted with a number of challenges which hinder their growth and economic performance (Ayandibu & Houghton, 2017). According to Bouazza, Ardjouman and Abada (2015), these challenges come from both internal and external environments. These challenges vary from country to country but there are common challenges which have been identified in the existing literature. These include lack of finance, high crime rate, red tape and corruption, among others.

2.4.1 Lack of Finance

Bouazza *et al.* (2015) identify problems in accessing finance as the major problem hindering the growth and performance of SMEs in most developing countries. Majority of small businesses do not have tangible collateral security required by banks to approve a loan. The other alternative source of finance for SMEs can be government funding. However, there are irregularities in terms of government funding. Most SMEs find themselves in difficult situations where they cannot easily obtain government funding. Some studies cite corruption as the major factor blocking the easy flow of government funding.

In South Africa, it is noted from existing literature that there is lack of coordination among government departments mandated to assist SMEs. One of the major challenges pointed out as hindering the growth and survival of start-up SMEs in SA is access to finance (Mazanai & Fatoki, 2012). Before the crisis, access to finance was already seen as a concern to SMEs in many developing countries, accessing the funding that they needed to grow and expand. Banks do not provide SMEs with adequate capital in many of these countries (Dalberg, 2011). Financial institutions credit processing has become more complex, and institutions have become more cautious because of the financial crises, making it difficult for SMEs to understand the procedures and decisions when it comes to the loan processing (Haron *et al.*, 2013). Pretorius and Shaw (2004) observe that a vast majority of SMEs rely on internal finance, such as contribution from owners, family and friends, which is often inadequate for SMEs to survive and grow. Therefore, access to external finance is necessary to reduce the impact of cash flow problems for SMEs.

2.4.2 High crime rate

Most SMEs complain that the cost of doing business in South Africa is increasing as they are forced to upgrade the security at their business premises (Bushe, 2019). Crime is among one of the top challenges faced by SMEs, especially in South Africa (Bushe, 2019). Others especially those located in rural areas and townships wish that the government should do something to reduce the crime rate in South Africa. For instance, South Africa ranked 5th position globally in terms of crime rate in 2015 (United Nations Office on Drugs and Crime's (UNODC), 2015). In fact, South Africa's crime rate and murder cases are likened to warzones such as Ethiopia, Yemen and Iraq, among others. This reduces and hampers the growth of small businesses, especially those that do not have enough money to hire extra security for their companies as their business premises are invaded frequently.

2.4.3 Red tape

According to Bouaza *et al.* (2015), the red tape is usually found in the legal and regulatory framework. St-Jean *et al.* (2008) argue that heavy regulations on the SME sector and high tax rates are hindering the growth and sustainability of majority of SMEs. To support this, the International Finance Corporation (IFC, 2013) conducted a study using 45 000 businesses in developing countries. The results indicated that red tape and high tax rates are among the top challenges faced by most SMEs. In South Africa, other researchers feel that SMEs should be exempted from paying taxes for them to grow.

However, some analysts feel that such a strategy could narrow the tax base of the government and affect its functions as they are mainly funded from tax money. To overcome the above challenges, there are interesting possible solutions raised in existing literature. Among such technology is m commerce. This technology will be discussed in detail in the next section. The success of the small business sector is continuously threatened by poor allocation of resources and over-regulation (Chamberlain & Smith, 2006).

Regulations governing the establishment of businesses are extremely intricate and conflicting. Mollentz (2002) argued that some SMEs do not comply because of some regulations being time-consuming and expensive. However, most SMEs do not understand the laws that govern them, making it difficult to be compliant. South Africa's SMEs owners are losing confidence that the country's rigid labour laws are conducive

to business growth. With regards to government policy, the country ranks among the worst in the world in terms of labour market efficiency. Labour regulations are currently ranked as one of the most restrictive factors for doing business in South Africa for businesses dependent on labour. South Africa has extremely restrictive labour policies, and the new labour regulations being promulgated have been slated as being even more restrictive than existing problematic policies (Herrington, Kew & Kew, 2010).

2.4.4 Corruption

Corruption is one of the major challenges holding most SMEs back. It has emerged that most governments in Africa allocate a budget every financial year towards small business development. However, these funds are misused and never reach the intended beneficiaries. Other corrupt activities are reported in the tendering and bidding process. In most instances, it is difficult for SMEs to obtain a tender as most of them go to a few individuals.

Recently in South Africa, the minister of Small Business Development suspended 9 officials with immediate effect after whistle blowers pointed to some corrupt activities happening within the department (South African Government, 2019). These officials working within Cooperatives Incentives Scheme (CIS) and Black Business Supplier Development Programme (BBSDP) were implicated in corrupt activities such as maladministration, misrepresentation of facts, collusion and contravening the programme guidelines and standard operating procedures (South African Government, 2019). Such corrupt activities are very common in South Africa and weaken the performance of SMEs.

In South Africa, the corruption rate is high compared to developed countries (Transparency International, 2008). Transparency International's (TI) 2013 annual global corruption perception index (CPI) shows that SA has dropped 34 places since 2001. Out of 175 countries, SA ranks at number 72 (Corruption Watch, 2013). According to the GEM report, corruption is becoming more prevalent, impacting enterprises' ability to survive and grow in SA, while high levels of crime are affecting all businesses (Xavier, Kelley, Kew, Herrington & Vorderwuibecke, 2012). In a survey of SMEs in Mexico, more than 50% of those interviewed saw their businesses severely negatively affected by corrupt practices (UNIDO, 2007).

2.4.5 Lack of Training and Education

In South Africa, lack of education is seen as one of the most significant barriers to entrepreneurial activity (Nieman & Nieuwenhuizen, 2009). It also noted that education is positively related to entrepreneurial activity. Lack of management skills by SME owners and managers can be attributed to lack of education and training. Education and training help develop management competencies which are necessary for the success of the enterprise. Hellriegel, Jackson, Slocum, Staude, Amos, Klopper, Louw and Oosthuizen (2008) define managerial competencies as sets of knowledge, skills, behaviours and attitudes that can contribute to personal effectiveness.

Management competencies are very crucial for the survival and growth of a business venture. Herrington and Wood (2003) point out that in South Africa, it is lack of education and training that has reduced management capacity in SMEs. Lack of education and training is one of the reasons why there is a very high failure rate of SMEs and low level of entrepreneurial creation.

2.4.6 Internal Environmental Factors

The internal environment includes factors in the business environment that are largely controllable by the business (Fatoki & Garwe, 2010; Kolstad & Wiig, 2015). Challenges in the internal environment of a business include management competency and skills, limited financial knowledge, a lack of business management training and technological capabilities. The literature will discuss the internal environment factors, which include various factors, namely: managerial competency and skills, access to finance and technological capabilities.

2.4.7 Managerial Competency and Skills

Managerial competencies have a positive influence on the performance of SMEs. Managerial experience, education, knowledge and start-up experience are used to measure managerial competencies (Hisrich & Drnovsek, 2002). In a study where the importance of management competence in SMEs success was investigated, lack of managerial competency was found to be the main reason why SMEs fail (Martin & Staines, 2008). Abdel, Rowena and Robyn (2010) revealed that small business owner-managers, understand financial and accounting information and have serious problems with financial planning literacy. On the same theme, it has been asserted that small and micro enterprise owner managers have little knowledge about financial

matters, and those with little or limited financial planning skills do not even value the information extracted from financial statements (Alattar, Kouhy & Innes, 2009).

2.4.8 Technological Competencies

The primary reasons small businesses continue to face growth challenges in developing countries, despite significant support from governments and other organisations, is their technological capabilities or lack thereof (Arinaitwe, 2006). Small businesses are still hindered by their lack of technological implementation, despite great technological advancements globally. China, with its abundance of cheap labour, has the comparative advantage in the labour-intensive, low cost industries. The operation of many of the Indian SMEs is low scale production, which reduces their ability to reduce costs of products and engage in technological upgrades, which is a major obstacle (Singh, Garg & Deshmukh, 2010). Without this technology, these small businesses find it difficult to either compete or grow (Arinaitwe, 2006). SMEs around the world, like in China and India, face common challenges being upgrading technology and building product quality.

2.4.9 External Environmental Factors

Factors such as economic variables and markets, crime and corruption, labour, infrastructure and regulations make up the external environment (Fatoki & Garwe, 2010). In a comparative research between Nigeria and UK, Ihua (2009) found that economic growth of Nigerian SMEs was hindered by externally related factors, like the poor economic conditions and infrastructural inadequacy.

2.4.10 Competition

Businesses have to make decisions which deal not only with business survival opportunities, but also with business development in a changing environment under dynamic competitive conditions where each competitor tries to do impossible things to survive (Scarborough *et al.*, 2009). The competitive standards change continuously due to consumers' changing needs and expectations, technological developments and globalisation of markets. Over the years, competition among SMEs has increased radically. Competition and sustainability for SMEs involve factors such as changing market trends, changing technologies and emerging new management and organisational techniques. SME survival is increasingly dependent on a number of factors, including resilience of SMEs to refocus some of their strategies and technologies (Gunasekaran, Rai & Griffin, 2011).

2.4.11 Globalisation

For businesses across the globe, going global is not a preference or a matter of choice, but rather a necessity. Failure to cultivate global markets can be a lethal mistake for modern businesses, whatever their size. To be successful, business must consider themselves to be businesses without borders. Small businesses can no longer consider themselves to be strictly domestic businesses in the competitive global environment. Going global can put a tremendous strain on a small company (Scarborough *et al.*, 2009). Though the trend toward convergence has been developing for some time, the pace seems to be quickening, creating global opportunities and competition that did not exist even a few years ago. With the astounding rate of economic growth in countries such as China and India, a small business owner would be unwise to ignore overseas opportunities (Longenecker, 2012).

2.4.12 Macroeconomic Factors

Van Eeden, Viviers and Venter (2003) found that macro-environmental issues such as inflation, interest rates and unemployment were the main factors negatively affecting the success of small businesses in four major urban areas in SA. Macroeconomic variable inflation results in the increase in expenses which again reduces the profits of SMEs and diverts investment to ensure the growth and success of the business. Inflation not only affects SMEs, but also their consumers, as it increases the costs of goods and decreases their disposable income (Cant & Wiid, 2013). Weak rand and high inflation rates are some of the characteristics of SA economic environment. Global economic downturn has been one of the reasons for the country's economic decline (Ehlers & Lazenby, 2007). The rand has depreciated by about 5% to the dollar since the beginning of 2014 (Maswanganyi, 2014).

2.5 FAILURE OF SMEs

In every developing country, including South Africa, SMEs are recognised as key drivers of economic growth and employment. The reality is that for every success story, there are several businesses that do not make it through the first two years of existence. On average, about 50% of all start-up businesses in South Africa fail within 24 months due to the inability and inexperience of their owners (Small Enterprises at Standard Bank, 2014).

Small and Medium Scale Enterprises are very vulnerable, and their failure rate is very high; so high that no nation can turn a blind eye. Moreover, Herrington, Kew, Simrie and Turton (2011) argue that the impact of failure can also have an influence on government policy and planned strategies. It has been confirmed that SMEs are engines of economic development in most countries. The Business Statistics Office in the United Kingdom (UK) observed that 60 percent of SMEs fail in the first three years of existence. In the United States, the failure rate is similar but with “eighty percent of all newly established enterprises succumb within their first five years”. Nigerian Economic Summit Group (2002) also emphasises that about 70 per cent of Small Enterprises in Nigeria failed within the first five years of operation. With this being the case, greater efforts are urgently needed to reduce the fatality rate of Small and Medium Scale Enterprises.

Hence their high failure rate has a huge impact on employment rate, lost productivity, purchasing power (unpaid wages) and finance (unpaid debts), poverty reduction and income equality. Business failures can also lead to social problems such as crime, drunkenness and prostitution. It can further lead to reduced income for the government in the form of lower taxes and increased expenditures on crime prevention.

2.10 Summary

This chapter discussed the definitions of SMEs from an international and a South African perspective. The contributions, challenges and failures of SMEs were also discussed. Though SMEs have had a positive move in the right direction, more still needs to be done to give knowledge and provide support on improving small businesses. In conclusion, Small and Medium Enterprises need ICT in this modern day to compete on the market and engage with their customers. As various research has shown, this does not always have a positive impact, and does not necessarily increase sales, but it is important to be able to interact with customers and suppliers to gain their perspectives on the business or its products and services. This will undoubtedly assist the owner to make better business decisions. With more and more businesses using ICT, this would benefit the business and possibly lead to better performance. The next chapter will review the literature on ICT adoption by SMEs and impact on performance.

CHAPTER THREE

3. ICT ADOPTION BY SMEs IN SOUTH AFRICA

3.1 INTRODUCTION

In this chapter, the aim is to identify the literature on the determinants of ICT adoption by SMEs for improved performance, given that not much research has been done on the determinants of ICT and its impact on performance of small businesses. A modified model of the TAM will be used wherein more variables were added and will be assessed to see their impact on ICT adoption by SMEs.

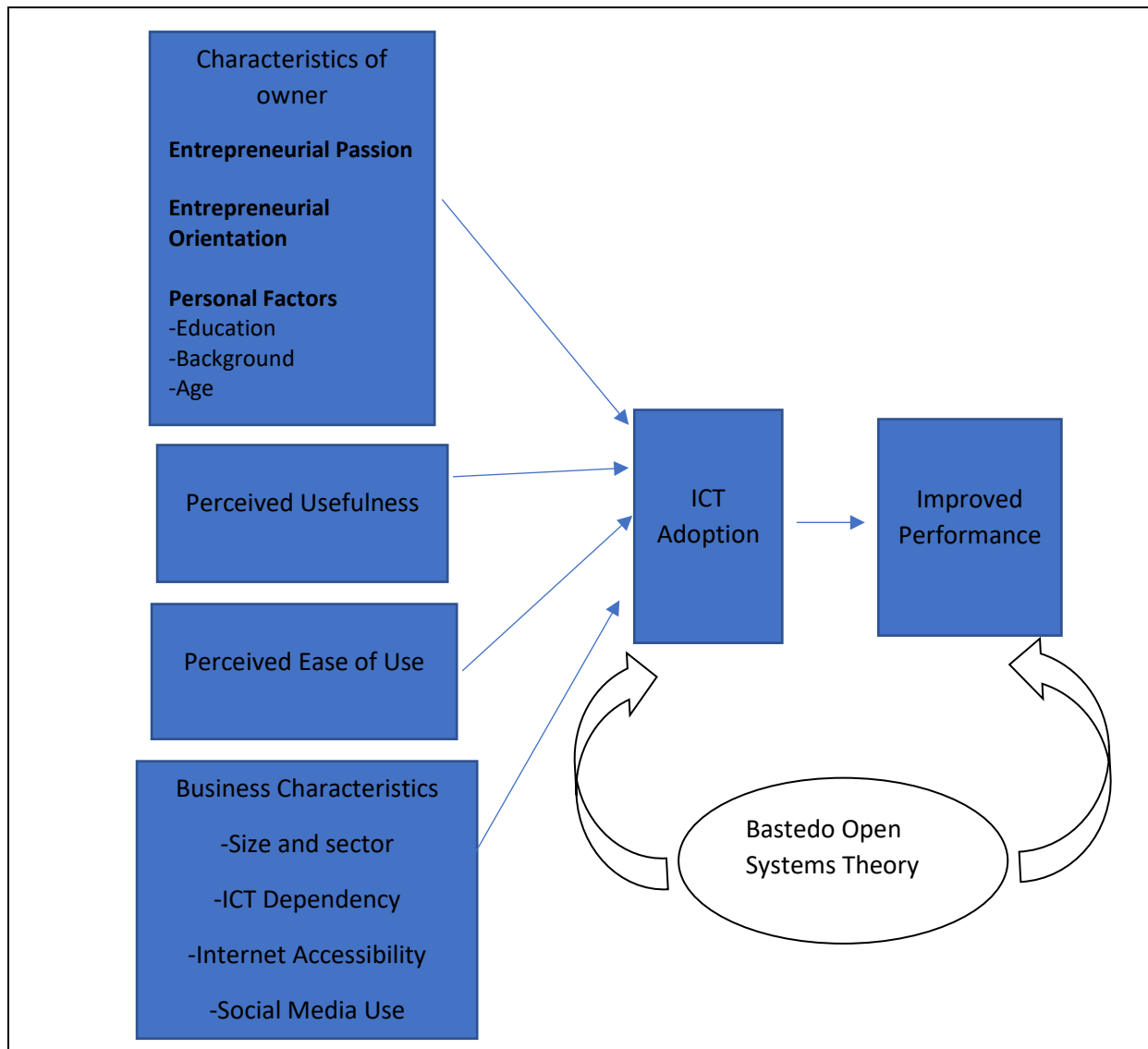
ICT determinants and how business owners use these determinants to interact with customers or suppliers has become a key and very important part of most businesses today. Most Small and Medium Enterprises are now using ICT strategically to improve the performance of their businesses and gain a greater market share. Therefore, the literature review section will look at determinants of ICT that will impact SMEs and how they affect performance. Thus, ICT determinants will be assessed based on the literature definitions and how the adoption of ICT and its users affect the performance of SMEs.

3.1.2 Introduction Use of ICT and Customer Relationship of SMEs

ICT has been a great platform for a business to communicate with their customers or even suppliers (Mangold & Faulds, 2009). Furthermore, due to the vast information made available, businesses can plan accordingly to effectively serve their market through platforms like strategic marketing. Networking can be a good way to make sure that you satisfy your customers and expand by appealing to new ones. For most businesses, the problem that they face is how to use ICT and its determinants to effectively interact or link with customers, suppliers and improved business performance. Feedback from your customers is very important as it will help you as a business owner to better understand which steps you need to take to be of better service to the customer. The use of ICT makes it easier for companies to connect with their businesses (Smith & Taylor, 2004). This will lead to things like social media marketing, for instance, which is basically businesses marketing themselves to their customers. It has proven more effective than relying on other sources as it gives the business a closer relationship to customers through good communication and ultimately efficient marketing (Kotler & Armstrong, 2011).

3.2 CONCEPTUAL FRAMEWORK

Figure 3. 1 Conceptual framework



(Source: Author's conceptualisation, 2020; Bastedo, 2004, p.52)

The above diagram shows determinants that can be adapted in the use of ICT by SMEs. These independent variables such as characteristics of the owner, which include entrepreneurial passion and personal factors, as well as business characteristics such as size and sector, ICT dependency to mention a few, as highlighted in the model above, have a direct impact on the level of ICT use by SMEs which in turn leads to improved performance.

This relationship is what is called an open system, which basically explains how the environment of small businesses is influenced using ICT in this case (Bastedo, 2004). The use of ICT provides ideas on how to better serve customers and helps business owners to discover ways to conduct business or new products and services to offer customers (Evans & McKee, 2010).

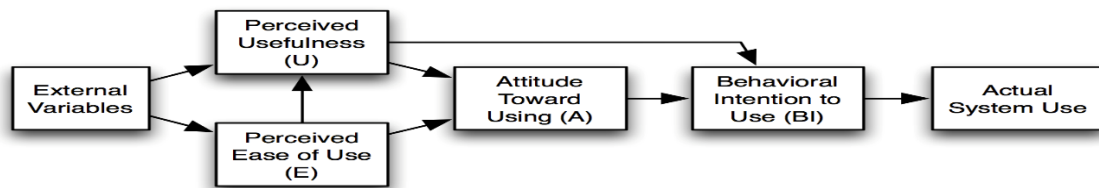
The growth of ICT network platforms on the World Wide Web has brought a big change. ICT offers constant connectivity for users, allowing them to share, and establish online communities. Both businesses and consumers use ICT to share information, exchange opinions and display certain consumption behaviour (Kotler & Armstrong, 2011). As such, ICT gives business owners the power to promote their products and services by transforming communication networks into networks that have an impact. Thus, the researcher will be adopting the Technology Acceptance Model (TAM) but will be extending it with more variables. TAM is an important theory in explaining the motive and behavioural aspects associated with people finally adopting or rejecting a certain technology. As such, the theory has been used widely in existing literature (Viehland & Leong 2007; Park, 2009; AlQahtani, Beloff & White, 2020).

3.3 INFORMATION COMMUNICATION TECHNOLOGY USE

The use of ICT among SMEs is quite common for various organisational objectives such as marketing, communication, sales, advertising and customer queries (Bhanot, 2012) interacting with suppliers (Beloff & Pandya, 2010; Handayani & Lisdianingrum, 2012) and internet marketing (Congxi *et al.*, 2010). SMEs and business owners use ICT and its tools to communicate with their customers and to improve communication within the business (Meske & Stieglitz, 2013).

3.4 TECHNOLOGY ACCEPTANCE MODEL (TAM)

Figure 3.2: Technology Acceptance Model



Source: Davis, Bagozzi and Warshaw (1989 p.138)

The Technology Acceptance Model by Davies (1989) has been adopted and modified to extend new variables of this study. The theory postulates that users of a given technology evaluate it first before its adoption. Davies (1989) postulates that users of a given technology weigh benefits versus costs associated with adopting the new technology. These costs and benefits are evaluated in terms of ease of use and scope of improving efficiency and effectiveness. This determines if the technology is considered useful by users. TAM has been shown to effectively model the acceptance and use of technology across firms, organisations and individuals (Seyal, Awais, Shamail & Abbas, 2004). Research has also proven TAM to be a predictor of acceptance of technology. The model proposed six items for technology acceptance: actual system use, behavioural intention to use, attitudes towards use, perceived usefulness, perceived ease of use and external characteristics. But for this research, perceived usefulness and perceived ease of use will be used since they predict user intentions more with an addition of more variables from the researcher.

3.5 ICT ADOPTION IN THE SMES

During the past decades, a significant number of researches have been conducted to determine factors that influence the adoption of ICT (Eze *et al.*, 2018) but only little research has been carried out on the adoption of ICT in Small and Medium Enterprises (SMEs). It has been noted that small firms differ from large companies because they have unique computing needs and different technology acceptance patterns. Corrales and Westhoff (2006) defined ICT adoption as “the choice an individual makes to accept or reject a particular innovation and the extent to which that innovation is integrated into the appropriate context.” Ideally, SMEs are better than large firms because of greater flexibility which allows them for the easier adoption of new technologies (Nagayya & Rao, 2013).

However, research has shown that SMEs are generally slower in adopting ICT compared to large enterprises. The inability of SMEs to adopt ICT can be attributed to a variety of reasons. Some SMEs have few resources to allocate to ICT and lack the ability to recognise the benefits that ICT may provide to the business (Wolcott *et al.*, 2008). Others found that SMEs lack top management engagement (Furuholt & Orvik, 2006), poor business skills, competencies, literacy, lack of affordability of ICTs, poor infrastructure (Michailidis *et al.*, 2012) and lack adequate training and support (Wei & Morgan, 2014).

Stansfield and Grant (2003) identified the lack of knowledge, skills and support as the main barriers of ICT adoption in SMEs. Farhoornand *et al.* (2010) found lack of adequate infrastructure, resistance to change, cost of implementation, cultural and legal issues to have slowed down the acceptance of ICT among SMEs. It was also found that only one in every eight ICT projects in SMEs could be considered as truly successful (McManus & Wood-Harper, 2007). Among the problems identified are limited managerial abilities, poor project management and lack of technical resources. Recent study established that some macro issues related to societal and organisational environment need to be critically examined to reduce barriers of ICT adoption, especially in developing countries (Venkatesh *et al.*, 2016). Nevertheless, the significant contribution of SMEs to job creation, improvement of living standard and innovation is well known, and thus innovative strategies are clearly needed in the SMEs to improve survival and growth in the ever changing business environment, and effective deployment of ICT is likely to be a critical part of such strategies (Jones, 2011). ICT is also vital for rural SMEs for more sustainable economic development.

According to Narula and Arora (2010), rural based SMEs could be benefited in the context of extension of communication, business involvement, dissemination of information as well as knowledge sharing among their business networks. Despite several studies that have been conducted on ICT adoption, relatively empirical researches on ICT adoption among rural based SMEs are still very limited. The limited research that has been done also shows that SMEs in the rural areas have not kept up with technology implementation in comparison to SMEs in the urban setting and companies of bigger size (Arenius & Cleriq, 2015). Many rural business communities face problems in accessing up-to-date ICT infrastructure: to be more competitive in the industrial revolution 4.0. In addition, rural entrepreneurs are highly required to

adopt current technologies and to maximise usage of most fitting ICT technologies to maintain their relevance in the current business setting. There is no ambiguity that awareness is considered one of the major constraints of ICT adoption among rural based SME entrepreneurs (Kyobe, 2011). Yu *et al.* (2017) pinpointed several factors that influence rural based SMEs. Taken together, these studies highlighted some issues such as limited information literacy, limited skills, poor investment of ICT, lack of research on innovation, poor infrastructure, myths associated with ICT, lack of national policy on ICT development, technology supply problems, education problems and economic factors.

Corrales and Westhoff (2006) also strongly pointed out other factors such as exposure, capacity to adopt and use ICT, and state policies. They also conclusively reported that, ICT adoption takes place if some SME owners who can afford to acquire the technology, have the necessary funds, and the required skills, as well as the adequate technological infrastructure to adopt the technologies. According to Okon (2015), poor technological infrastructure is a major problem when it comes to the implementation of ICT projects in rural areas. The highlighted facilitating condition, especially lack of telecommunication infrastructure in the rural settings, is a major impediment of ICT. Moreover, lack of accessibility to high speed and economical telecommunication service, hinders the aim of rural businesses to maximise the benefits of ICT and become competitive, (Anderson, 2001; Deakins *et al.*, 2003). In addition, commercial feasibility and capability of the technology are required for the suitability of adoption (Galloway & Mochrie, 2005).

Thus, adequate infrastructure is essential for improved access and capability to utilise technology among the rural based SMEs. The lack of awareness and information on the perceived benefits of ICT is an important issue which hinders the implementation of ICT projects. This lack of information has been found to be the main reason why SMEs in the rural areas become less growth-oriented and lack of global orientation (Deakins *et al.*, 2013). Studies have found that low levels of awareness and skills on ICT were due to low levels of income and education (Narula, 2008) because businesses in these areas lack exposure, the opportunity to develop new ICT related business skills and have limited expertise (Huggins & Izushi, 2012; Smallbone *et al.*, 2012; Galloway & Mochrie, 2015). Therefore, according to Narula and Arora (2010), the effective implementation of technologies depends mainly on raising awareness of

the potential and benefits of ICT and increasing business skills of the rural based SMEs.

3.5.1 DETERMINANTS INFLUENCING ADOPTION OF ICT USE

Studies in the USA and the UK indicate that factors such as perceived ease of use or business characteristics of the owner have significant impact on ICT adoption (Wamba & Carter, 2013). However, SMEs use ICT if its tools provide a significant amount of relevant and high-quality up-to-date content (Zeiller & Schauer, 2011). Also factors such as perceived usefulness (Wang *et al.*, 2010), entrepreneurial passion (Chong & Chan, 2012), entrepreneurial orientation (Chai *et al.*, 2011) and personal factors (Lee & Kozar, 2012) play a vital part in influencing ICT adoption.

3.5.1.1 Perceived ease of use

Perceived ease of use can be defined as how easy ICT is to use to certain individuals. Studies have shown that the perceived ease of use relates positively to users' attitudes and the effortlessness of using the system (Ho, Wong & Lee, 2011). Perceived ease of use with regards to online learning, for example, goes to show how individuals have a positive attitude towards E-learning (Wu & Zhang, 2014). Furthermore, perceived ease of use could also influence the adoption of ICT directly or indirectly through perceived usefulness. Davies (1989) defined perceived ease of use as the perception by an individual that adopting a new technology will result in them using less effort to do something. In the case of ICT adoption, perceived ease of use explains how SME owners evaluate determinants of ICT in terms of being easy to use.

There is a claim in Information System (SI) literature that the higher perceived ease of use of any system, the higher the perceived usefulness will be (Elkhani, Soltani & Ahmad, 2014). This is supported by the work of some other researchers (see for instance, Bhatiasevi & Yoopetch, 2015; Kim, 2014; Lee, Hsieh & Hsu, 2011). This is in contrast to another study which found that perceived ease of use did not influence perceived usefulness (Lee & Lehto, 2013). Moreover, a positive relationship was found between perceived ease of use and system usage, which was emphasised through different contexts and technological applications (Anisur *et al.*, 2016; Elkhani *et al.*, 2014). However, other studies obtained a contrasting result which stated that perceived ease of use did not influence actual usage (Lee & Kim, 2009). However, in this study, perceived ease of use is adopted with a positive relationship towards ICT.

H₁ Perceived Ease of Use positively influences the adoption of ICT by SMEs

3.5.1.2 Perceived usefulness

Perceived usefulness explains how using a certain system by an individual enhances their job performance (Davis *et al.*, 1989). The perceived usefulness of ICT can be shown as the impact of ICT to a person achieving increased profitability or revenue. Perceived usefulness basically shows an individual's attitude towards ICT and their continued use of it (Lee *et al.*, 2013). Moreover, perceived usefulness seems to explain the effect of perceived ease of use on how an individual behaves, which is a relationship that has been supported by many empirical studies. In the ICT literature, for example, it was viewed widely that ICT, to a greater extent, influences perceived usefulness (Alraimi, Hangjung, Zo & Ciganek, 2015). Perceived usefulness is defined as the perception by an individual that adopting a given technology will enhance their performance in a given area (Davies, 1989).

For instance, in the context of this study, perceived usefulness may mean SME owners' perception of whether the adoption of ICT will enhance their performance. Weak performance has been haunting SMEs in South Africa, and the failure rate is alarming. Therefore, SME owners will evaluate if ICT adoption will unlock new opportunities for them, which informs their decision to adopt or reject it. According to Davies (1989), perceived usefulness of new technology can be improved by ensuring that the new technology meets the quality criteria of users. This can positively shape the attitude of users towards adopting the given technology. On the other hand, users can adopt new technology if they are guaranteed that they will be able to access training on how to use it.

H₂ Perceived usefulness positively affects the adoption of ICT by SMEs

3.5.2 Characteristics of Owner

The characteristics of the owner can be described as personal attributes of owners that can influence their behaviour. In the context of this study, the characteristics of the owner refers to attributes of owners of SMEs that can influence the adoption of ICT.

3.5.2.1 Entrepreneurial Passion

Entrepreneurial passion is a motivational construct characterised by how emotional an individual is and how driven they are through the engagement with personally

meaningful work, which is key to the self-identity of the entrepreneur (Baron, 2008). Therefore, an entrepreneur who is passionate will seek more modern and inventive ways to grow their business or increase profitability, and one such a way is through the use of ICT. A growing body of research indicates that entrepreneurial passion plays a pivotal role in new venture creation processes (Cardon & Kirk, 2015).

Passion is viewed as the 'fire of desire' that fuels the daily efforts and creativity of entrepreneurs and forces them to persevere amid all the difficulties they encounter (Cardon & Kirk 2015). Also, passion has been reported to play a great role in fostering confidences and skills within the context of individual activities and intentions (Cardon, Gregoire, Stevens & Patel. 2013). Furthermore, as discussed earlier, researchers Baum and Locke (2004) and Cardon, Wincent, Singh and Drnovsek (2009) pointed out that entrepreneurial passion triggers the desire for a person to engage in activities associated with the practice of entrepreneurship. When a person is passionate about starting a business, he or she will be more likely to find a means to acquire and develop the relevant skills related to entrepreneurial activities, which will increase their ability to perform the activity. Entrepreneurs with a strong passion are more motivated, persuasive, have larger social networks and more social capital (Ghobakhloo, 2011).

H₃ Entrepreneurial passion positively influences the adoption of ICT by SMEs

3.5.2.2 Entrepreneurial Orientation

Entrepreneurial orientation (EO) has become one of the most established constructs in entrepreneurship and broader management research, and a number of recent reviews of the EO literature have been conducted (Covin & Miller, 2014). Research on EO is accelerating and broadening, gaining significant traction in scholarly outlets beyond solely entrepreneurship domain-specific journals (Wales *et al.*, 2013). Moreover, the number of manuscripts on the topic of EO has exceeded that of articles examining the broader topic of corporate entrepreneurship (Covin & Lumpkin, 2011). The historical roots of the EO concept have previously been addressed in a number of recent studies including Anderson *et al.* (2015), Basso *et al.* (2009), Covin and Wales (2012), Edmond and Wiklund (2010) and Miller (2011), showing how it goes back a long way. In line with these reviews, Covin and Lumpkin (2011) note that with the theoretical acceptance of the EO construct, entrepreneurship is regarded as more

than simply a singular act or activity, such as the launching of a new innovation – it is an overall strategic posture.

EO has been defined in a variety of manners in past research (Covin & Wales, 2012). Anderson *et al.* (2009) offer a complex, but encompassing and representative definition of EO, which views it as a firm's decision-making practices, managerial philosophies, and strategic behaviours that are entrepreneurial in nature. The three dimensions of EO which have historically captured EO as a firm-level overarching strategic posture are innovativeness, proactiveness and risk-taking. These dimensions are derived from Danny Miller's early work on a firm's strategy-making (Edmond & Wiklund, 2010; Miller, 2011).

It is important to observe that as EO is a theoretically defined construct, there does not exist a context in which it can be argued on empirical grounds that the dimensions should not be combined (Covin & Lumpkin, 2011). However, since there can be lower order insights gleaned from examining the dimensions independently, I agree with Miller (2011) that the best way to describe may entail analyses that provide insights into both the overall EO construct, as well as noting the independent effects of the constructs dimensions. Sustaining entrepreneurial beliefs and behaviours produces a great deal of variance in the performance of EO firms (Wiklund & Shepherd, 2011). As not all EO firm activities will turn out successfully, entrepreneurial behaviours often fail to generate an economic return. Thus, though it can be complex, it is vital to look at the various dimensions (Anderson *et al.*, 2015),

Both Covin and Lumpkin (2011) and Miller (2011) consider configurational models to represent a high-potential area of research in the EO domain. Miller (2011) suggests that useful taxonomies may incorporate environmental, organisational, strategic, cultural, and leadership/governance variables. Wales *et al.* (2013) build upon these prior calls suggesting that time may have come to compare the relative influence of internal, external, and strategic contingency variables on EO and its relationships with firm outcomes.

Entrepreneurial orientation is a strategy that is used by some firms to portray an organisation's managerial philosophies, how the firm behaves with regards to its entrepreneurial nature, and the strategy-making process (Wales & William, 2015). Entrepreneurial orientation has become key to most researchers with regard to

entrepreneurship literature (Covin & Wales, 2011). The inclusion of proactiveness, innovativeness and risk taking as important aspects of EO has become very significant to its orientation (Wales & William, 2013). EO has become important in showing how a firm performs, as it greatly speaks to the leadership style of the business owner (Wales & William, 2015). Hence EO has a positive relationship with a business owner adopting ICT.

H₄ Entrepreneurial orientation positively affects the adoption of ICT by SMEs

3.5.2.3 Personal Factors

These speak to the educational background of the entrepreneur, the age as well as their personal background. The type or level of education received shows how quick an individual can grasp ICT and its implementation in order to increase performance (Covin & Wales, 2011). Furthermore, age also plays a role because ICT is constantly revolving and the younger generation understands its applications more than the older generations, hence the younger the owner the more they are likely to adopt ICT. Lastly, the type of personal background also affects ICT adoption, because depending on what environment the owner is exposed to in terms of technological aspects, this will most likely lead them to value its principles and influence them to adopt it (Wu & Zhang, 2014).

H₅ Personal factors positively affects the adoption of ICT by SMEs

3.5.2.4 Education and ICT use

ICT can be a powerful tool in the sector of education and not only the future of fresh graduate, but also the demand for teachers to be confident and competent users of ICT for their personal and professional lives is continually growing due to rapid changes in ICT (Ismail, 2016). Addictions of technology have been an important focus in various studies around the world (Carbonell & Panova, 2017). The addiction of ICT (Greene, Approved, Praslova & Georgianna, 2016), internet, mobile phone, television, gaming, on line gaming and social media addiction has been revulsion in the recent decades not only around the world, but also developing countries like South Africa and Bangladesh (Ejechi, 2016). The use of internet and ICT is a good sign for any country that this country is keeping with the trends of modern technology (Rahaman, 2017). But when this usage will become an addiction, it will cause a serious harm for the

entire nation (Corporation, 2003). Use of the internet in an addictive mode is fast becoming a significant problem worldwide now.

In South Africa, for instance, university students are particularly vulnerable for the reason that the internet has already been an integral part and parcel of student life in a whole day rather than their textbooks and other activities (Meenakshi, 2013). Most university students are highly engaged in the virtual life such as ICT and internet (Derevensky & Gilbeau, 2015). The addiction of ICT and internet by university students all over the world is increasing with each day, (Zaid & Aminatul, 2013; Soh, Teh, Hong, Ong & Charlton, 2013). Though some studies show the negative impact of ICT, it is largely key to understanding technology and its vast applications on business development and growth.

H₆ Education and background positively affects the adoption of ICT by SMEs

3.5.2.5 Age and ICT adoption

Compared to employees younger than 30 years, an older workforce is negatively related to the probability of technology adoption. On the contrary, the dispersion of the employees' age within the workforce seems not to be connected with the probability of technology adoption. However, in firms with intensive use of teamwork, a homogenous workforce in terms of age is positively related to the probability of technology adoption (Derevensky & Gilbeau, 2015).

3.5.3 Business Characteristics

Business characteristics can be defined as attributes that are peculiar to enterprises and can influence their behaviour and decisions. In the context of this study, business characteristics are attributes of SMEs that can influence the adoption of ICT.

3.5.3.1 Size and Sector

The size and sector are factors that affect whether a business adopts ICT because, if the firm is too small, it might not have the necessary resources to implement ICT as a way to increase performance since it might be costly to do so and the sector in which the business will also influence the adoption of ICT as a way of increasing competitive advantage (Lee *et al.*, 2013). It has become important for small businesses to not only perform in domestic settings, but to participate globally.

Failure of small businesses to expand or participate globally could result in them crumbling as it has become more necessary for them to do so. In order for businesses

to succeed, gone are the days when they are limited by borders. However, going global can present its own challenges and strain a small company (Scarborough, Wilson & Zimmerer, 2009). Though this has been happening for a while, most small businesses are expanding internationally, creating global opportunities and competition that did not exist even a few years ago. With the amazing rate at which economies such as that of China and India are growing, it would not make much sense for small businesses to consider expanding internationally (Longenecker, 2012).

H₇ Size and sector positively affects the adoption of ICT by SMEs

3.5.3.2 ICT dependency

The more the business is dependent on ICT, the more it is more likely to adopt ICT, as it uses it more frequently as part of its operations (Ghobakhloo, 2011). One of the key reasons why small businesses are failing to grow despite support from government is because most of them are failing to embrace technology (Arinaitwe, 2006). Without technology, it is virtually impossible for small businesses to see any meaningful growth or compete with other businesses, and besides great technological advancements, some SMEs still do not see the value of adopting technology and its implementation thereof (Arinaitwe, 2006). Many SMEs face challenges of upgrading their technology, and in the long-term, produce quality products or services. Due to low scale production by most SMEs, which then affects their ability to reduce costs of products and ultimately upgrade to meaningful technology, this then becomes a great obstacle (Singh, Garg & Deshmukh, 2010).

ICT is one of the most important driving forces promoting economic growth and sustainability of any country (Islam, 2016). Research in areas like Bangladesh, for instance, shows that they have invested heavily in ICT (Rahaman, 2017), which can be a helpful tool in all aspects with the help of various applications for distance education (Sharma, 2014), Facebook groups (Wang, 2011), Google plus groups (Sussman, Omar, Bolong & Osman, 2011), various social groups (Schuemann, 2014), newspapers, the internet, radio, televisions etc. (Islam, 2016). Therefore, if used appropriately, ICT is able to have a positive and huge impact on the growth and performance of small businesses.

H₈ ICT dependency positively affects the adoption of ICT by SMEs

3.5.3.3 Social media use

Most small businesses are using social media tools such as Facebook, WhatsApp, and twitter as a way of marketing and reaching out to a greater market (Lee & Kozar, 2012). Furthermore, such tools have proved to be less costly and more effective in increasing revenue as well as awareness on businesses' products and services. Thus, more small businesses are more likely to adopt ICT because of this (Mbuyisa, 2017).

Studies in the United States of America (USA) and the United Kingdom (UK) indicate that factors such as age, geographic location and firm innovativeness have a significant impact on social media tools such as Twitter (Wamba & Carter, 2013). Previous researches provided evidence of successful deployment of social media platforms by firms in the consumer products and service industry such as electronic technology and clothing. For example, Borker (2014) reported that most firms listed on the Mongolia Stock Exchange have a website and a Facebook brand page to attract users to have access to information about the firm and its product. Pentina, Koh and Le (2012) showed that the use of social media marketing in small businesses is strongly influenced by competitors and customers.

Entrepreneurs in the Arabian Gulf deploy social media platforms as a part of their marketing strategy because it is a cost-effective and easy way of advertising (Indrupati & Henari, 2012). It gives all entrepreneurs a better chance of reaching their target market. Since the advent and usage of social media, customers of firms have been seen as a very strategic opportunity that enables them to evaluate and search for products to buy on the business platform (Albors, Ramos & Hervas, 2008).

Firms make use of various social media platforms such as Facebook, YouTube, Twitter, Instagram and LinkedIn to make their experiences about a product known. They also use it for interactions with others who have engaged the firm's platform about a product they are interested in (Chen, 2012). As a result of the improved performance of firms since deploying social media platforms for their marketing activities, recent researchers have discovered new trends to its usage by customers.

H₉ Social media positively affects the adoption of ICT by SMEs

3.5.3.4 Internet accessibility

Internet accessibility is also a key factor in adopting ICT, since using the internet will depend on whether the business is in a location that can allow it to access internet

services in terms of geographical location, as well as the cost of having such a service. The use of certain technology depends highly on the infrastructure to support such technologies, even though most SMEs have basic communication tools (May, Waema & Bjåstad, 2014). Compatibility is also another factor for the adoption of innovation by SMEs (Wang *et al.*, 2010). When certain technology has a positive impact on a business, that business will tend to use it in such a way that will benefit that business. Whether or not a business decides on accessing the internet or having internet services depends largely on whether it is compatible with such services.

H₁₀ Internet accessibility positively affects ICT adoption by SMEs

3.5 IMPACT OF ICT ON SME SECTOR

The SME sector has an important role to play in economic development, poverty reduction and employment creation in developing economies. The sector largely exceeds the average economic growth of national economies in many countries and contributes significantly to employment creation (Esselaar, *et al.*, 2006; Higon, 2011). A study in the UK identified three distinct stages in ICT use in small businesses (Matthews, 2007):

- Basic – minimal usage of ICT, Matthews (2007) argues that in terms of harnessing technologies, a similar staged progression can be observed, with companies progressing from simple to enabling technologies. As an organisation or company grows or expands, a specific function or department is more likely to be required to use or adopt ICT. Moreover, the stage of harnessing technologies and certain infrastructure, skilled ICT personnel etc. are closely linked and could determine the extent of the potential positive impact of ICT. If there are certain infrastructure, skilled ICT personnel and sufficient budget to invest in ICT, a positive impact could be expected in the private sector. According to Manocchhari, Al-Esmail and Ashrafi (2012), ICT platforms (for example, PCs, mobiles, internet, etc.) have four main contributions to organisations:

- More visibility to business enterprises;
- Provide more information to small firms;
- Allow enterprises to overcome traditional trade barriers;
- Facilitate financial transactions.

ICT also influences flexibility of organisations. Furthermore, companies that adopt ICT tend to perform better in market and easier differentiate products, services etc. Ollo-Lopez and Aramendia-Muneta (2012) state that ICT adoption seems to have a positive effect on productivity, directly as well as indirectly, depending on the sectors and to have great potential to support sustainable development.

Furthermore, the use of e-mail, e-commerce and social media network has significantly cut down on the physical transportation involved in sending mail, banking, advertising and buying goods (Manochehri, Al-Esmail & Ashrafi, 2012). However, it is important to emphasise the importance of long-term investments in ICT because the positive impact of ICT occurs only after a period of adoption (Consoli, 2012; Bayo-Moriones, Billon & Lera-Lopez, 2013). Also, it is important to bear in mind that organisations adopting ICT have to adjust their structure, make internal changes such as personnel training, and reorganise them.

Studies show that investments in ICT had a considerable effect on the productivity of the labour force and on economic growth (Manochehri, Al-Esmail & Ashrafi, 2012; Sabbagh, Friedrich, El-Darwiche, Singh & Ganediwalla, 2012). It is also known that ICTs make services more easily tradable and increase productivity in manufacturing enterprises (Manochehri, Al-Esmail & Ashrafi, 2012). A growing number of studies confirmed a positive and significant effect on productivity. In addition, other studies indicate that the productivity effect is not only significant and positive, but also increasing in both private and public sectors.

3.6 IMPACT OF ICT ON ORGANISATIONAL PERFORMANCE

ICT became an indispensable part of the contemporary world. As a natural result of this development, ICT transforms the political, social, legal and other elements in a society. The impact of ICT on teaching and learning in conventional and distance education institutions has emphasised the need for a national level educational policy on ICT (Singh & Ganediwalla, 2012). It is also certain that countries have different levels in ICT. For example, television and telephone services are still considered luxury items in Cameroon. Similarly, the internet penetration rate in Cameroon was about 4% in 2009 (Linden, 2011).

It has become important for businesses to measure ICT, especially among companies and researchers. The more measurement systems are improved, the more the number

of metrics increase and become trustworthy. It is vital for SMEs to measure success against performance, because these results help in terms of managing crisis or increasing brand awareness (Singh & Ganediwalla, 2012). An example of such metrics is that the number of visitors, friends or followers does not automatically convert into higher order value or sales. However, it is difficult to ascertain its contribution compared to paid advertising and other types of promotion. Moreover, another issue is the time it takes for Social Network Marketing to work. Finally, calculating the number of people that the business interacts with, which is the main goal of Social Network Marketing (SNM), does not necessarily ensure business owners and customers' issues are resolved satisfactorily (Pentina *et al.*, 2012).

In general, it is agreed that mishandling ICT can have significant negative impacts. There is a strong relationship in a user's influence rank across different topics. Thus, most influential users hold significant influence over a variety of topics. This means that local opinion leaders and highly popular figures could indeed be used to spread information outside their area of expertise.

Revenue that is generated by using ICT should be revealed. In addition to this, investments made in ICT should be considered and the rate of return should be calculated. Furthermore, small and medium enterprises (SMEs) seem to have a problem, since the lack of necessary resources, people and time has prevented most of them to experiment with ICTs such as social media, for instance (Bulearca & Bulearca, 2010).

There is no doubt that ICT would affect and be affected by developments in economies and entrepreneurship. For example, previous studies suggested that ICT enables economic development by increasing the speed of information diffusion and introducing new practices in workplaces (Lee & Lio, 2017). ICT also plays a role in developing the business environment and enhancing competitiveness, productivity and creating new job opportunities such as network and system security specialists, and thus, reducing unemployment (Okon & Nyoku, 2016).

Despite many advantages of using ICT, organisational-level research on determinants such as characteristics of the owner and its impact on business performance has not grown as rapidly (Lovejoy & Saxton, 2012; Shahizan *et al.*, 2012). For instance, Rodriguez *et al.* (2014) prove to show that ICT determinants such as perceived

usefulness have a positive impact on customer-orientated processes, which in turn can affect the sales of a business. Furthermore, another researcher demonstrates that the use of ICT positively impacts the social capital of a business, thereby increasing its value (Ferrer *et al.*, 2013). This can be supported by research by Kwok and Yu (2013), who found that sales can be increased with social media usage, for instance.

Alam and Noor (2009) confirm that factors such as market share, profitability, market value and productivity have a positive impact on ICT and the overall performance of the business. The same study revealed that ICT has an impact on performance measures such as service quality, flexibility, cost savings and customer satisfaction. Therefore, strategic performance can as a result be said to affect ICTs indirectly. Communication improvement that comes about as a result of adopting ICT can result in better operational performance (Bayo-Moriones *et al.*, 2013). Thus, when businesses use ICT, it can positively increase their sales.

H₉ The adoption of ICT positively impacts the performance of SMEs

3.7 IMPORTANCE OF USING ICT AS A MARKETING STRATEGY

ICT is a powerful tool to gain customers, communicates with them, and basically recruits in a way people will make others aware of your brand. However, to effect Word of Mouth Marketing (WOM), build trust between the business and the consumer and reduce any concerns the customer might have (Miller & Lammas, 2010). More and more customers are looking to tools of ICT such as social media instead of googling for information about a product, service or business entity (Newman, 2013). Hence social media has become a key factor in building trust between the business and the customer (Singh & Ganediwalla, 2012).

3.8 GOVERNMENT INTERVENTION

The role of the government in providing infrastructure and policy is indisputable. Having gone through decades of Apartheid rule, the South African government is expected to play a direct and pivotal role in facilitating an infrastructure that enables SMEs to compete and allow previously disadvantaged black majority to fully participate in the economy. Mpofu *et al.* (2010) found the government to be playing a significant role in SMEs in the tourism sector.

Policies and regulations affect every facet of SMEs more so than in large organisations. In many developing countries in sectors such as telecommunications,

governments have maintained control of the industry (for example, Telkom in South Africa) (Gillwald, 2005). While this was expected and practised during the Apartheid era, surprisingly, even post-Apartheid South Africa continues with a telecommunications monopoly. This is viewed by some owner-managers as limiting the full exploitation of ICT because of issues such as poor internet speeds, lack of bandwidth and high access cost. However, some analysts have claimed that deregulation has led to affordable communication and technology development in South Africa (Reddy & Rampersad, 2013).

Furthermore, in its attempt to redress the economic inequalities of the past, the government has pursued policies that seek firms to attain a particular classification to be eligible to bid for government contracts or tenders (Reddy & Rampersad, 2013). One such policy is the broad-based black economic empowerment (B-BBEE), which requires SMEs to have attained a particular classification on the B-BBEE score card system. Such policies have been criticised in relation to bids that have gone through using political connections and not on the basis of merit. Also, some firms seeking certification may claim that their secretaries, gardeners and drivers are directors in order to satisfy the regulatory authorities of a proportionate black representation in firms. Window dressing often takes the form of “black people that are listed as shareholders, executives, or management, but who are unaware or uncertain of their role or participation within an enterprise” (Lotheringen, 2012).

As seen above, while such policies may have been aimed at driving the use and impact of ICT in SMEs, they also seem to have unintended consequences. Nevertheless, ICT use has been driven especially in the logistics sector due to government regulations requiring firms to use specific types of ICT applications. This has in turn resulted in positive business impacts for firms. It can be seen however that the role of government has been key to SMEs succeeding through these various initiatives aimed at boosting and supporting SMEs.

3.8 SUMMARY

In this chapter, we analysed the adoption of ICT by SMEs by looking at the determinants of ICT. The chapter also discussed the impact of ICT on SMEs, as well as the impact of ICT on performance of the business and the SME sector. Furthermore, the chapter looked at the role of government in the form of support it

offers to SMEs in South Africa. Increased sales and enhanced procedures for compliance with government regulations point to growing capacity of SMEs in benefitting from ICT. Another critical fact is that the government plays a catalysing role in encouraging the use of ICT through policy requiring firms to adopt specific technologies. This facilitates competitiveness of SMEs and their engagement in strategic collaborative relationships with larger firms.

Although firms are constrained by lack of expertise and often by government policy, there are also many examples of strategic impact of ICT in the form of collaboration and even possibilities of competition with larger firms. However, as discussed earlier, the broad-based black economic empowerment (B-BBEE) policies have had unintended consequences and are not perceived as enhancing entrepreneurship and SME development. Therefore, it is important for support to be offered not only to disadvantaged black people but to all South Africans despite race, as long as their SME is in need. The next chapter will discuss the methodology that was used in this research paper.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 INTRODUCTION

This chapter discusses the research methodology used to investigate the determinants of ICT adoption by SMEs. The research methods employed in this study are discussed, as well as the research approach, research design, research strategy, data collection techniques and the techniques used by the researcher to analyse the collected data. The research methodology will look at the types of research designs such as qualitative, quantitative, hybrid, exploratory, descriptive and causal research designs. In motivation, the type of research chosen in the study will be specified. The population of the study will also be discussed as well as the sampling method used in the study. The data analysis method used will also be presented, including the motivation for the data analysis method used in the study. Lastly, the reliability, validity and ethical considerations of the study will be discussed.

4.2 OVERVIEW OF THE RESEARCH

The research had the following objectives:

- Analyse whether ICT is adopted and used by SMEs.
- Investigate factors that influence ICT adoption in the SME sector.
- Assess the influence of ICT adoption on SME performance.

4.3 RESEARCH DESIGN

The researcher of this study subscribed to the positivist school of thought, which provides the philosophical basis for the research design of this study. In a positivism study, the role of the researcher is limited to data collection and interpretation. In positivism, the researcher must be independent and be able to formulate hypotheses and generalise the results through statistical probabilities (Babbie and Mouton, 2013). This study used the deductive approach. Deductive research develops theories or hypotheses through empirical observation (Babbie and Mouton, 2013).. Hypotheses were developed and empirically tested to assess the validity of the theory.

This research is quantitative, which is numerical in nature (Queirós, Faria & Almeida, 2017). Quantitative research is derived from the scientific research field which believes that a phenomenon is best understood when it is approached objectively. The quantitative research design focuses on aspects of the phenomenon which can be quantified and analysed statistically (Rahman, 2017). According to Martin and Bridgmon (2012), the quantitative research design aims to generate verifiable findings since statistical methods are used to compute and analyse the data. Based on this, the quantitative research design utilises numbers and quantifiable data, which is further analysed to make generalisations from the results. Some of the characteristics of the quantitative research design are that it starts from hypotheses guided by a theoretical framework which is later tested to approve or disapprove the theory (Queirós *et al.*, 2017).

The quantitative research design was chosen in this study because it has several advantages which were deemed important by the researcher. The quantitative research design is objective since it uses numerical datasets, which make it easy to verify (Borrego, Douglas & Amylin, 2009). The results found in the representative sample could easily be generalised to other samples in other provinces with the same characteristics as Limpopo Province. Furthermore, as stated by Martin and Bridgmon (2012), the quantitative research design enabled the researcher to use a huge sample size which is usually not possible under a qualitative research design. This enhances the quality of the results (Powers & Powers, 2015). According to Hoy and Adams (2015), the structured approach utilised in the quantitative research design enhances its robustness and usefulness to readers as it makes it easy to comprehend. The quantitative research method is also relatively easy to conduct as data can easily be collected using questionnaires and analysed easily using different statistical packages (Rahman, 2017).

However, the quantitative research methodology may have its own limitations which the researcher was aware of. The quantitative research design uses structured procedures to collect and analyse data. This may cause inflexibility in the research process as there is no scope for participants to express their feelings and emotions about the particular topic (Rahman, 2017). Furthermore, the quantitative research design may not provide reasons as to why such results were found as compared to qualitative research where the participant is there to provide strong evidence through

additional probing. Besides the noted limitations of a quantitative research, this strategy remained the perfect research method of this study. This is because the researcher intended to gather quantitative data to achieve the objectives of the study.

4.3.1 Types of research designs

There are three basic types of research design. These are qualitative, quantitative and a hybrid of the two. Crowther and Lancaster (2009) note that the choice of a research design centres on the nature of the research, the setting, the possible limitations and the underlying paradigm that informs the research project.

4.3.1.1 Qualitative research

Qualitative research aims to gather an understanding of human behaviour and the reasons that govern such behaviour (Cooper & Schindler, 2011). The aim of qualitative research is to offer a perspective of a situation and to provide well-written research reports that reflect the researcher's ability to illustrate or describe the corresponding phenomenon. Qualitative research is commonly known to use unstructured data collection methods (Cooper & Schindler, 2011), and is useful in exploring the depth of new developments and assist in thoroughly explaining and managing those developments (Sekaran & Bougie, 2013). This study did not adopt the qualitative research design because the aim of the study is to evaluate the determinants of ICT adoption by SMEs for improved performance.

4.3.1.2 Quantitative research

Quantitative research is a systematic scientific investigation of quantitative properties and phenomena and their relationships (Cooper & Schindler, 2011). The objective of quantitative approach is to develop and employ mathematical models, theories and/or hypotheses pertaining to a phenomenon. Quantitative research was used with the causal research design because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships. The requirements for quantitative research include (Cooper & Schindler, 2003):

- The generation of models, theories and hypotheses.
- The development of instruments and methods for measurement.
- Collection of empirical data.
- Modelling and analysis of data.

- Evaluation of results.

Therefore, since answering the research questions requires the determination of factors and the establishment of relationships between variables, the present study used the quantitative research design, which describes a study whose findings are mainly the product of statistical summary and analysis. In the questionnaire, numbers were assigned to the properties in the phenomena to represent their qualities, and the researcher relied on data analysis to arrive at findings or conclusions (Ghauri & Gronhaug, 2005). Quantitative research is considered the best research method especially when sampling large results and making generalisations that lead to the acquisition of data and the study of correlation between variables. These outcomes are quantified in numbers (Cooper & Schindler, 2011). The study has made use of a quantitative research design.

This method involves the collection of primary data samples with the intention of projecting results on a wider population (Bless, Higson-Smith & Sithole, 2013). This method was selected because it uses numerical data to collect information that can, in turn, be used to explain as well as determine connections amongst variables. The method can also be used to test cause-and-effect. The research approach is quantitative in nature as Likert scales will be used to quantify the responses (Grix, 2010). Quantitative research enabled the research to use statistical tests to analyse the data (Bryman, Bell, Hirschsohn, Dos Santos, Du Toit, Masenge, Van Aardt and Wagner, 2011).

There are three types of research that can be used in quantitative research or qualitative research or both, depending on the information required by the research problem. The three types of research are exploratory, descriptive and causal research.

4.3.1.3 Fused research

The use of both qualitative and quantitative data collection methods in a single study is not sufficient enough to categorise a study as 'hybrid research'. It is in the integration or linking of the two strands of data that defines hybrid research and highlights its value. Integration can happen at multiple levels of a study design level, methods level, or interpretation level and can happen in a variety of different ways connecting, building, merging or embedding (Fetters, Curry & Creswell, 2013; Creswell & Plano Clark, 2011).

Mixing qualitative and quantitative is a common hybrid approach. Hybrid refers to bringing together a mix of different methodologies involving individual or group interaction as well as in-person or digital methodologies. Hybrid qualitative research can also bring together different target markets, stakeholders, or even expert opinions in our project design (Cooper & Schindler, 2011; Creswell & Plano Clark, 2011). This study did not adopt the hybrid research design because the aim of the study is to analyse the determinants of ICT adoption and its impact on performance of SMEs.

There are three types of research that can be used in quantitative research or qualitative research or both, depending on the information required by the research problem. The three types of research are exploratory, descriptive, exploratory and casual research.

- **Exploratory research**

The purpose of exploratory research is to question how things are (Babbie, 2013). Cooper and Schindler (2011) examine the use of exploratory research with the objective of developing and testing theories in a specific field of study. Hence, exploratory research reveals causes, validates causality between factors and determines the impact of a social behaviour. Exploratory research relates to the quantitative method, which makes use of statistical analysis to interpret data (Bless *et al.*, 2013). When new information is collected, previous explanations of behaviour are often retained for future purposes (Babbie, 2013). Exploratory research must explain why events happened, and the data gathered using this type of research is used to evaluate and test theories or hypotheses (Cooper & Schindler, 2011).

- **Descriptive research**

Descriptive research is used to describe the research problem in detail, and answers questions: who, what, when, where and how? Implicit in descriptive research is the realisation that the researcher already knows or understands the underlying relationships of the research problem (Ghuri & Grønhaug, 2010). The researcher may have a general understanding of the research problem, but conclusive evidence that provides answers to the question should still be collected to determine the course of action. Descriptive research can be conducted in two ways, namely longitudinal or cross-sectional (Grix, 2010).

According to Babbie (2013), longitudinal studies are investigations involving a fixed sample of element (a panel) that is measured repeatedly. Cross-sectional studies, on the other hand, are a type of research that involves the collection of information from any given sample population elements only once. This study used the cross-sectional approach, where data was collected from the respondents only once through the survey method (Grix, 2010).

- **Causal research**

Babbie (2013) points out that causal research, examines whether one variable causes or determines the value of another variable. Causal research reveals a cause-and-effect relationship between dependent and independent variables. A dependent variable is a symbol or concept that is expected to be explained or caused by an independent variable. An independent variable is a symbol or concept over which the researcher has some control (Bless *et al.*, 2013). Therefore, the researcher chose causal research in this study. This will allow the researcher in this study to better understand the relationship between businesses adopting the determinants of ICT and how they are used to improve performance.

4.4 POPULATION AND SAMPLING

4.4.1 Population

Population is the study subject, which may be individuals, groups or organisations. It encompasses of units of analysis about which the researcher wishes to draw conclusions (Babbie, 2013). The study was based on existing SMEs operating within Capricorn District Municipality in Limpopo Province. Given that studying all the elements within the populations is not feasible because of time and cost constraints, the researcher must choose a sample (Bhattacharjee, 2012). Thus, the population of this study are SMEs in the Capricorn District Municipality, Limpopo Province.

4.4.2 Sampling

There are two sampling methods. These are probability and non-probability methods. Probability sampling is a controlled procedure that assures that each population element is given a known non-zero chance of selection. In contrast, non-probability sampling is subjective and arbitrary (non-random). Each element of the population does not have a known non-zero chance of being included in the study (Babbie, 2013). Simple random sampling as a form of probability sampling method will be used to

identify participants of the study. A sample is defined as representative portion of the total population (Saunders *et al.*, 2009). According to Bell, Bryman and Harley (2018), in a quantitative study, the sample size should be sufficient if generalisation of the research findings is to be accurate. A sampling is considered in research to save both time and resources. This is because it is not feasible to survey everyone in the population framework. Bell *et al.* (2018) identify probability and non-probability sampling methods as major sampling methods in research.

4.4.2.1 Probability sampling

Probability sampling is also known as random sampling. It is sampling which permits every single item from the universe to have an equal chance of presence in the sample (Ranjit & Kumar, 2011). Probability sampling type is based on the following: systematic random sampling, stratified types of sampling, cluster sampling, multi-stage sampling and area sampling.

4.4.2.1.1 Systematic random sampling

In systematic sampling, only the first unit is selected randomly, and the remaining units of the sample are to be selected by a fixed period. It is not like a random sample in a real sense. Systematic sampling has confident points of having improvement over the simple random sample. The execution of the method is very easy, less in cost and convenient to use in case of a larger population (Jonhstone & Keith, 2010).

4.4.2.1.2 Stratified sampling

Stratified sampling. Is applied when the population from which a sample to be drawn from the group does not have a homogeneous group of stratified sampling techniques. In general, it is used to obtain a representative of a good sample (Etikan & Bala, 2017). A stratified type of sampling divides the universe into several sub-groups of population that are individually more homogeneous than the total population (the sub-populations differences are called strata). Select items will be selected from each stratum to generate a sample. In this case, each of the stratum will be more homogeneous with the population and more precise, and an estimate will be generated from each of the stratum (Etikan & Bala, 2017).

We get the estimate of the population from each stratum when there is better accuracy from each of the components; we get a better estimate of the whole. Stratified sampling gives more reliable and detailed information about the sample. The forming of strata is informed by the purposive system from a well experienced and special

judgment of the researcher (Ranjit & Kumar, 2011). The strata are defined by the population characteristics of the estimate. The fitted organised design for stratification is the pilot study, which assists in the determination of more appropriate and efficient planning for stratification. Elements within both strata are homogeneous while elements between each strata are heterogeneous (Etikan, Alkassim & Abubakar, 2016).

Items selection from each separately stratum is done by using simple random sampling and systematic random sampling because they are reflected more proper in a convinced situation. Proportional allocation is used when the sample size from different strata will be kept proportional to the strata size (Ranjit & Kumar, 2011). To compare the difference for the strata, selecting equal sample from each of the stratum would be more efficient even though the strata will be different in sizes. In cases the strata differ not only by size but also in variability, it is considered reasonable to take larger samples from the more variable of strata and smaller samples from the less variable strata and account for both differences of stratum size and differences of stratum variability. Disproportionate sampling design is required in the sample sizes of k strata which is called the optimum allocation (Etikan & Bala, 2017).

4.4.2.1.3 Cluster sampling

When the total area of the research is too large, a better way for the researcher is to divide the area into smaller parts of the same or equal, and then to select randomly from the smaller units (Cooper & Schindler, 2011). It is expected that the total population is to be divided into relatively smaller numbers, which are from the clusters of smaller units. Some of these cluster units will be selected randomly so that they will be included in the general sampling. One of the advantages of using cluster sampling is economical in reducing costs. By concentrating on the selected clusters, it gives less precision than the simple random sampling.

4.4.2.1.4 Multi-stage sampling

Normally, multi-stage sampling design is applicable in big inquires of geographical area for the entire country (Babbie, 2013). Multistage sampling has to do with the combination of various methods of probability sampling in a most effective and efficient approach. Area sampling is a design sampling that deals with a subdivision of environment that represents clusters of units that centred on terrestrial location (Babbie, 2013).

4.4.2.2 Non-Probability sampling

Non-probability sampling is a sampling procedure that will not bid a basis for any opinion of probability that elements in the universe will have a chance to be included in the study sample. We are going to see from diverse methods of five different sampling considering non-random designs, which are quota sampling, accidental sampling, judgemental sampling or purposive sampling, expert sampling, snowball sampling and modal instant sampling.

4.4.2.2.1 Sampling Quota sampling

The researcher has ease of access to his sample population by using a quota sample. The tallying will be at his/her convenience guide by some evident characteristics such as sex and race based on population of interest. The sample selection is by the convenient door of the researcher. Any person or individual mistakenly seen with the same characteristics will be asked pertaining the subject of the research for inclusion (Bell *et al.*, 2018). It will flow in the same manner until the desired number is achieved.

4.4.2.2.2 Expert sampling

The researcher seeks for the consent of those that are experts or known experts in the area of study and begins the process of collecting his information directly from individuals or group of respondents, (Cooper & Schindler, 2011). It also involves the sample assembling of a group of people that can demonstrate using their experience, or those that specialised in part of the areas. The reasons for using expert sampling is to have a better way of constructing views of individuals that are experts in a definite area. It is also used to provide confirmation of validity to another approach of a selection of sampling.

4.4.2.2.3 Snowball and convenience sampling

Snowball sampling is a technique where a researcher picks a first few samples, and either recruits them or asks them to recommend other subjects that they know who fit the description of samples needed. The main advantage of snowball sampling is that the referral system helps to a great extent to get appropriate samples quickly at a conveniently low cost. The disadvantage is that respondents may not be willing to cooperate, citing ethical reasons or fear of danger to their lives. Due to the lack of a comprehensive sample frame, the study adopted a non-probability sampling technique. Specifically, snowball sampling and convenience techniques were utilised to build the sample size through a line of references from one respondent to another. According to Yin (2011), snowball sampling takes place as a point-to-point direction in

which the existing respondent directs the researcher to another potential respondent. Using this technique, the researcher will survey participants who are available, and will ask them to recommend people who meet the criteria required in this study. This procedure is repeated until the exact number of the sample is accumulated. In this case the number reached was 360.

4.5 DATA COLLECTION

There are various data collection methods such as surveys, which are a good way of gathering a large amount of data, providing a broad perspective. In sample surveys, a sample is selected as a representative of the target population. The emphasis is on the generation of summary statistics such as averages and percentages (Babbie, 2013).

Thus, questionnaires were used to collect primary data. Primary data is the data collected for the first time, while secondary data is that data that has already been collected and passed through statistical process (Bless *et al.*, 2013). Questionnaires were administered by the researcher to owners of SMEs. The advantage of using questionnaires in research is that there is no need for direct contact by the researcher with the respondent as it would be required with other methods of data collection (Bless *et al.*, 2013).

For the purpose of this study, self-administered questionnaires using the survey method will be used to collect data. A survey is one of the methods used to collect a large amount of data. A self-administered questionnaire is the most commonly used method of gathering information about the use and the user. The researcher chose self-administered questionnaire to collect data because they are easy to prepare and less expensive to reach out to people at the same time. The scale used was a Likert scale where: SD = strongly disagree; D = disagree; N= neutral; A = agree and SA = strongly agree. A closed-ended questionnaire was adopted because of the advantages it presents to researchers. One of these advantages is that it is relatively easy to administer and analyse. This saves time and resources. The questionnaire was developed by populating questions from existing literature.

In survey research, the researcher selects a sample of respondents from a population and administers a standardised questionnaire to them, (Gaiser & Schreiner, 2009). This study used survey as the research method because other methods of data

collection such as observations and experiments were inapplicable to collect data to investigate the research problems. In addition, the survey method was chosen to conduct the research due to its advantages: it is quick, less expensive and is a relevant means of analysing evidence regarding a specific group (Gaiser & Schreiner, 2009).

The study followed the survey research process as pointed out by Yin (2011):

- The population to be studied was defined.
- A representative sample was selected.
- Data was collected through the use of self-administered questionnaires.
- SPSS (Statistical Package for Social Sciences) was used to tabulate and analyse the sample to produce various sample statistics.
- Inferences were made from sample statistics to population parameters of interest.

Yin (2011) pointed out that methods of conducting surveys include personal interviews, telephone surveys, mail surveys, self-administered surveys and computer-assisted surveys. A personal interview (i.e. face-to-face communication) is a two-way conversation initiated by an interviewer to obtain information from a participant. Telephone interviews take place when respondents are telephoned in order to gather primary data about a specific research problem. The researcher often has access to a list of people who have a telephone. As such, it yields a higher response rate as compared to mailed questionnaires. Telephone interviews are not expensive and less time consuming; they can only be costly if it involves a long-distance call (Yin, 2011).

A mail survey is a survey that takes place when the researcher selects a sample of names and addresses, and then sends questionnaires to these respondents with the aim of collecting data. With a computer-assisted survey, questionnaires are sent by email to respondents. In addition, a website may be created in which a questionnaire is placed for the attention of respondents (Cooper & Schindler, 2011).

This study used self-administered questionnaires as the primary research instrument. A questionnaire can be described as a formalised set of questions for obtaining information from respondents. It is a structured standardised procedure, and pre-coded and containing open-ended questions that are at times used to collect information from respondents who record their own answers (Yin, 2011). The researcher used questionnaires to collect data from the respondents because they help to ensure that information from different respondents is comparable. In addition,

responses obtained through questionnaires can easily be coded. This facilitates data processing. Furthermore, questionnaires are economical in terms of money and time (Cooper & Schindler, 2011). The questionnaires were personally delivered to respondents by the researcher but completed by them without her involvement.

The researcher used self-administered questionnaires for the following reasons as pointed out by Cooper and Schindler (2011):

- Self-administered questionnaires ensure anonymity and privacy of respondents, thereby encouraging more candid and honest responses.
- Self-administered questionnaires have proved to have a higher response rate than other data gathering techniques such as mail surveys.
- Self-administered questionnaires are less expensive than other data gathering methods such as personal interviews where the researcher must be present with respondents at all times.

4.5.1 Questionnaire

The primary research instrument which will be used by the researcher is the questionnaire. Cooper and Schindler (2011) described a questionnaire as a formalised set of questions for obtaining information from respondents. However, a questionnaire can also be described as a booklet of structured standardised procedure, pre-coded and containing open-ended questions at times that are used to collect information from respondents who record their own answers. It can also be considered as a data-collection instrument which sets out questions to be asked in a formal way in order to produce the desired information. A questionnaire was used by the researcher in this research study for the following reasons:

- Questionnaires help to ensure that information from different respondents is comparable.
- Questionnaires increase the speed and accuracy of recording.
- Questionnaires facilitate data processing.
- Questionnaires are economical in terms of time and money.
- Questionnaires enable the respondents to remain anonymous and be honest in their responses.

4.5.1.1 Survey questions

There are two primary types of survey questions that a researcher can use. These are open-ended and closed-ended questions. For open-ended questions, respondents use their own words (Murthy & Bhojanna, 2010). The researcher limited the use of open-ended questions because they are difficult to code and analyse as responses can vary widely (Cooper & Schindler, 2011). Close-ended questions specify permitted responses and make information available to respondents. Close-ended response questions offer respondents a selection of possible responses (Kelly & Lesh, 2012). These types of questions were used by the researcher because they can be easily coded and analysed. Cooper and Schindler (2011) point out that close-ended questions include dichotomous questions and Likert scale questions. Dichotomous questions only have two response alternatives.

A Likert scale is simply a statement that the respondent is asked to evaluate according to subjective or objective criteria; generally, the level of agreement or disagreement is measured. When responding to a Likert questionnaire item, respondents specify their level of agreement to a statement.

The researcher used Likert scale questions because of the following reasons as pointed out by Cooper and Schindler (2011):

- Likert scale eliminates the development of response bias amongst respondents.
- Likert scale can be used to assess attitudes, beliefs, opinions and perceptions.
- Using the Likert scale makes the response items standard and comparable amongst respondents.
- Responses from the Likert scale questions are easy to code and analyse directly from questionnaires.
- They are easy to code and analyse.
- Interviewer bias is reduced, and questions can be administered more quickly.

The researcher chose Likert Scale due to its benefits. It was very simple to construct, saving time for the researcher. The instrument produced a highly reliable scale

(Bertram, 2010) and it was easy to read and complete for respondents. However, Likert Scale has its own drawbacks. The researcher further stated that Likert scale questions are easy to code and to analyse. In addition, the use of Likert scale questions is consistent with the data collection method of previous empirical studies on strategic orientation and networking and sustainable performance of SMEs (Desta, 2015; Masocha & Fatoki, 2018).

4.5.1.2 Questionnaire content

The questionnaire was divided into four parts. These are (1) biographical information; (2) ICT adoption/use; and (4) determinants of ICT adoption. The determinants of ICT adoption were also subdivided into various constructs found in the study, which is perceived of use, perceived usefulness, entrepreneurial orientation, entrepreneurial passion, personal factors, business characteristics and performance.

The scale used to measure ICT adoption was adapted from previous literature (Espino-Rodríguez & Ramírez-Fierro, 2018). These studies used a twenty-five-question scale to measure determinants of ICT adoption with a high degree of reliability as evidenced by the Cronbach alpha coefficients (greater than 0.7). The five-point Likert scale ranging from “1 strongly agree”, “2 agree”, “3 neutral”, “4 disagree” and “5 strongly disagree” was used to measure the determinants of ICT adoption.

The questionnaires will be distributed to owners or managers of the sample of SMEs in study area. Self-administered questionnaires will be administered to collect the relevant information. The questionnaire comprises both closed questions to enhance uniformity and open-ended questions to ensure that maximum data is used. The questionnaires will be administered on a “drop and pick-later” basis.

4.6 DATA ANALYSIS

Data collected was analysed using descriptive statistics. The mean, median, percentages and standard deviation are the most used descriptive statistics. The Statistical Package for Social Sciences (SPSS) was used to analyse data. SPSS is software for performing statistical procedures in the social sciences field (Coakes, 2005). SPSS is among the most widely used programs for statistical analysis in social science. It is a complete statistical package that is based on a point and click interface. SPSS has almost all statistical features available and is widely used by researchers to perform quantitative analysis. Data analysis will include descriptive analysis,

Pearson correlation and regression analysis. Descriptive analysis is important in conducting statistical analysis. It gives the researcher an idea of the distribution of data, helps to detect outliers, and enables the identification of associations among variables, making it easy to conduct further statistical analyses. Correlation and regression will be used to test associations and relationships amongst variables.

4.6.1 Descriptive analysis

Descriptive analysis takes place at the beginning of the data analysis process, which is regarded as a summary of raw data converted into a simple interpretable and understandable data (Zikmund *et al.*, 2010). Descriptive statistics is effective in evaluating the basic characteristics of the data, which are often shown in frequencies and which measure the central tendency and dispersion (Bless *et al.*, 2013). In the study, the data collected was analysed by the form of mean and standard deviation.

In this study, the following statistical techniques were used as tools of descriptive analysis as pointed out by Bryman *et al.* (2011).

- The Distribution: The distribution is a summary of the frequency of individual values or ranges of values for a variable. Tables and bar charts were used.

4.6.2 Correlation analysis

Pearson's Correlation Coefficient is a technique of investigating the relationship between two quantitative continuous variables. It is a measure of the strength of the association between the variables. Correlation is a statistical process used to discover whether two or more variables are in a way related to the other (Bryman *et al.*, 2011). Correlation coefficient ranges from +1 to -1, with +1 being a total positive correlation and vice versa (Bhattacharjee, 2012). Thus, a Correlation coefficient of two variables that is closer to +1 indicates a strong positive correlation. Conversely, a Correlation coefficient close to -1 indicates a strong negative correlation between variables. A Correlation coefficient that is closer to 0 shows weak or no relationship. The P-value measures the significance. A 5% level of significance was used in the study. This is consistent with the significance level of most of the empirical studies on business management (Bryman *et al.*, 2011). The researcher used correlation to determine the level of association between ICT adoption/use and the determinants of ICT adoption by SMEs.

4.6.3 Regression analysis

Regression is particularly important in understanding the control of autonomous variables towards the reliant variable after a causal relationship has been proven. Regression analysis assists the researcher to fully understand the extent to which alterations to the degree of reliant factor affect alterations to the degree of the independent factor, while other independent variables remain constant (Zikmund *et al.*, 2010). There are various types of regression, namely simple linear regression, multiple regression and hierarchical regression (Bless *et al.*, 2013).

According to Kumari and Yadav (2018), simple linear regression is a statistical procedure for calculating the value of a dependent variable from an independent variable. Linear regression measures the association between two variables. It is a modelling technique where a dependent variable is predicted based on one or more independent variables. Linear regression analysis is the most widely used of all statistical techniques (Kumari & Yadav, 2018), while multiple regression is an extension of simple linear regression, which is used when we want to predict the value of a variable based on the value of two or more other variables. The variable we want to predict is called the dependent variable. The variables we are using to predict the value of the dependent variable are called independent variables (Anghelache, Manole, Anghel & Popovici, 2015). Hierarchical regression is a way to show if variables of your interest explain a statistically significant amount of variance in your dependent variable after accounting for all other variables (Richardson, Hamra, MacLehose, Cole & Chu, 2015). A simple linear regression was used to test the relationship between ICT use and each construct of the determinants of ICT adoption. In order to test the significance of the regression test, this study used a 95% confidence level. This means that for the tests to be accepted, the p-value has to be less than 0.05.

4.7 RELIABILITY

Tavakol and Dennick (2011) claimed that reliability shows the degree of solidity and consistency of a measuring tool over several repeat measurements. Cooper and Schindler (2011) explain that reliability is concerned with estimates of the degree to which a measurement is free of random or unstable error, and reliable instruments can be used with confidence that transient and situational factors are not interfering.

Zikmund, Babin, Carr and Griffin (2013) outline that reliability is the ability of a yardstick to regurgitate the same output of a study.

For the study, the researcher will use the internal consistency (Cronbach's alpha) reliability because it is the easiest to compute using software; it requires only one sample of data to estimate internal consistency reliability. According to Shelby (2011), Cronbach's alpha is a reliability metric used to evaluate the extent to which item responses derived from a scale correlate with each other. Makhitha and Dlodlo (2014) stated that there are several different reliability coefficients. A common coefficient is the Cronbach's alpha, which is based on the average correlation of items within a test if the items are standardised. The alpha coefficient ranges in value from 0 to 1. The higher the score, the more reliable the generated scale is. A score of 0.7 is the acceptable reliability coefficient.

4.8 VALIDITY

Validity aims to show the degree to which the measurement process is free of both random and systematic errors. It refers to whether an instrument actually measures what it is supposed to measure given the context in which it is used (Creswell, 2013). The integrity of a study is mostly important and depends on how valid a measuring instrument is. There are four major types of validity. These are face (content) validity, criterion related validity, content validity and construct validity (Shuttleworth, 2019).

According to Thornhill (2011), face (content) validity refers to the fact that the concept being measured is done appropriately. The face validity of a measuring instrument is the extent to which the instrument provides adequate coverage of the concept. It is a judgmental process that can be done in many ways. The researcher may choose to do it alone or may use a panel of experts or senior researchers in the field of study to judge how well the instrument meets the standard. Cooper and Schindler (2011) note that criterion related validity, also referred to as instrumental validity, is used to demonstrate the accuracy of a measure or procedure by comparing it with another measure or procedure, which has been demonstrated to be valid. Shuttleworth (2019) points out that content validity refers to the use of measures that will incorporate all of the meanings associated with a specific concept. Cooper and Schindler (2011) refer to construct validity as how adequately a scale or a test measures what it proposes to

measure. The researcher used the following steps to ensure the validity of the study as pointed out by Cooper and Schindler (2011).

- Pre-testing the research instrument in a pilot study.
- Sampling was carried out using probability methods ensuring external population validity.
- Using self-administered questionnaires, which generally have a high response rate.
- Using a big sample size with a margin of error of not more than 5% and a confidence level of 95%.
- Comprehensively reviewing the literature for theoretical constructs and empirical conclusions.

4.9 PILOT STUDY

The questionnaire was pre-tested with twenty owners of SMEs. The respondents did not participate in the final study. Cooper and Schindler (2011) describe pre-testing as the testing of the questionnaire on a small sample of respondents to identify and eliminate potential problems. This helps the researcher to be satisfied that the designed questionnaire will do the right job and that the data collected will be relevant and accurate. A pilot study helps to improve the phrasing and content of a questionnaire. The researcher pre-tested the questionnaire because as pointed out by Ford and Tusting (2013), pre-testing:

- Permits a thorough check of the planned statistical and analytical procedures, giving the researcher a chance to evaluate their usefulness for the data. The researcher may then be able to make needed alterations in the data collecting methods, and therefore, analyse data in the main study more efficiently.
- Can greatly reduce the number of unanticipated problems because the researcher has an opportunity to redesign parts of the study to overcome difficulties that the pilot study reveals.
- Saves a lot of time and money. The pilot test almost always provides enough data for the researcher to decide whether to go ahead with the main study.

The pilot study included 60 respondents. The results of the pilot study led to the removal of names of respondents (demographic information) and the name of the places of work (company information) of respondents from the questionnaire because some of them were not willing to reveal the information to the researcher.

4.10 ETHICAL CONSIDERATIONS

It is a requirement for all studies to consider ethical issues in the field in which research is undertaken (Farrimond, 2012). In some instances, researchers end up paying less attention to ethical issues in research. This has negative connotations as it may expose the researcher to possible lawsuits by those who may feel that their rights were infringed (Rahman, 2017). In this study, ethical issues were taken seriously, and include permission to conduct the study, informed consent, voluntary participation, confidentiality, and benefits expected from participating in the study and minimising harm.

4.10.1 Permission to Conduct the Study

It is important for a researcher to obtain permission to conduct the study from relevant authorities. Therefore, before commencing with data collection, the researcher applied for ethical clearance from Turfloop Research and Ethics Committee (TREC). This was issued to the researcher and formed part of the documents the researcher used to show participants when collecting data. The researcher also approached Capricorn District Municipality to obtain a list of SMEs in Polokwane and to seek permission to conduct the study with targeted businesses.

4.10.2 Informed Consent

According to Hammersley and Traianou (2012), researchers should seek informed consent from participants to collect data ethically. When the data collection started, participants were given a brief background and purpose of the study. They were also presented with a consent form which gave them a chance to decide whether they wanted to participate or not.

4.10.3 Confidentiality

The researcher assured participants that their names would not appear in any part of the research, and that the information they provided would be treated as confidential. Furthermore, participants were assured that the information they provided was

intended for research purposes only and the questionnaires were to be locked in a place accessible by the researcher only.

4.10.4 Voluntary Participation

Participation in the study was voluntary. Participants were assured that they could withdraw from the survey anytime without giving reasons. Furthermore, they were assured that they could not face any obligation or fine from withdrawing from the survey.

4.11 SUMMARY

The insight into the research methodology used in the study is provided in this chapter. The chapter described the research design. The various types of research design were discussed and the motivation for using the qualitative approach was provided. The chapter also discussed the sampling method and the data collection and analysis methods. The next chapter will focus on the research results.

CHAPTER FIVE

5. PRESENTATION, INTERPRETATION AND DISCUSSION OF RESEARCH RESULTS

5.1 INTRODUCTION

Chapter four presented aspects of the research methodology, including the research design, the sampling method as well as the data collection and data analysis methods that were used in this study. The purpose of this chapter is to present and interpret empirical findings of this research. In interpretation, the immediate results will be translated into integrated and meaningful general references and findings. The findings are relevant to the objectives of the research, which are to analyse whether ICT is adopted by SMEs, investigate factors that influence ICT adoption in the SME sector and to assess the influence of ICT adoption on the performance of SMEs. Furthermore, this chapter will look to establish how the determinants of ICT impact adoption or use of ICT by SMEs, as well as the impact on performance as shown through hypotheses in chapter one. The following section will relate the response rate.

5.2 RESPONSE RATE

Table 5. 1 The response rate

Respondents	No. of questionnaires distributed	Number returned	Response rate
SME owners	360	147	36.75%

Table 5.1 illustrates the response rate. Three hundred and sixty questionnaires were distributed to owners of SMEs, and one hundred and forty-seven questionnaires were returned. The response rate was 36.75%.

5.2.1 Gender of Respondents

Table 5. 2 Gender Results

		Respondents
Gender	Male	97
	Female	50
	Total	147

Of the 147 respondents, 97 of them were male and 50 were female as depicted in table 4.2 above. The distribution is shown below.

Figure 5. 1 Gender distribution

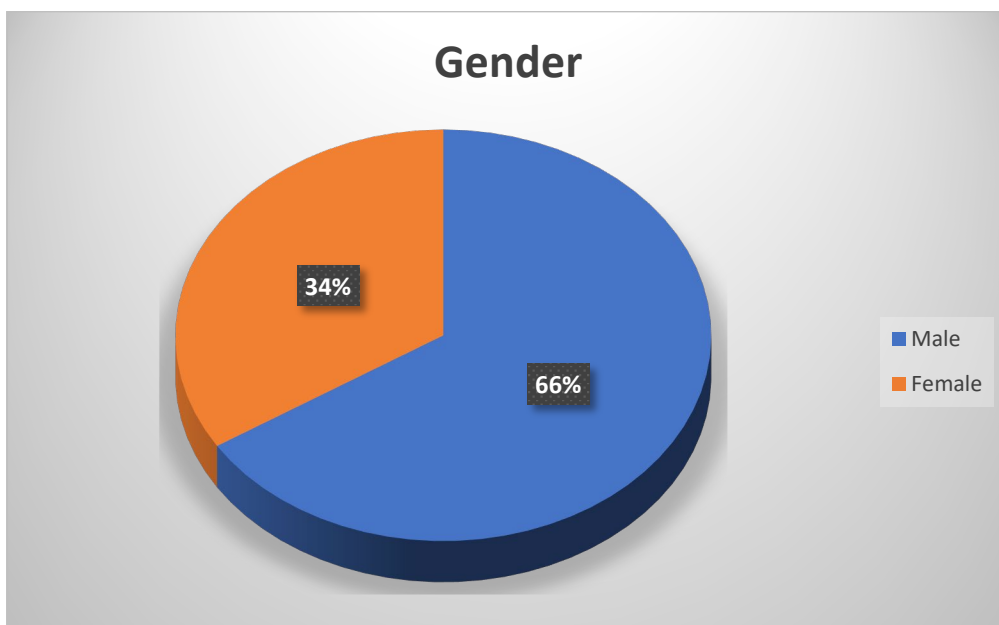


Figure 5.1 shows the gender distribution of participants. Findings show that 66% of participants were male, while 34% were female. This shows that the greater majority of business owners in the research area are males.

5.2.2 Age Distribution of Respondents

Table 5. 3 Age Distribution

		Respondents	Percent
Age Group	Below 20	7	4,8
	21 - 30	56	38,1
	31 - 40	61	41,5
	41 - 50	13	8,8
	Above 50	10	6,8
	Total	147	100,0

Table 5.3 above shows the different age groups of respondents. Of the 147 participants, 7 or 4.8% were below the age of 20, whereas 56 or 38.1% were between 21-30 years. The largest SME ownership group was between the ages of 31-40, which were 61 or 41.5%. Respondents aged between 41 and 50 were 13 or 8.8% and those above the age of 50 were 10 or 6.8%. Thus, from the data above, those aged between 21 and 40 are the biggest SME ownership group from the 147 that responded.

5.2.3 Level of Education

Figure 5. 2 Education Level

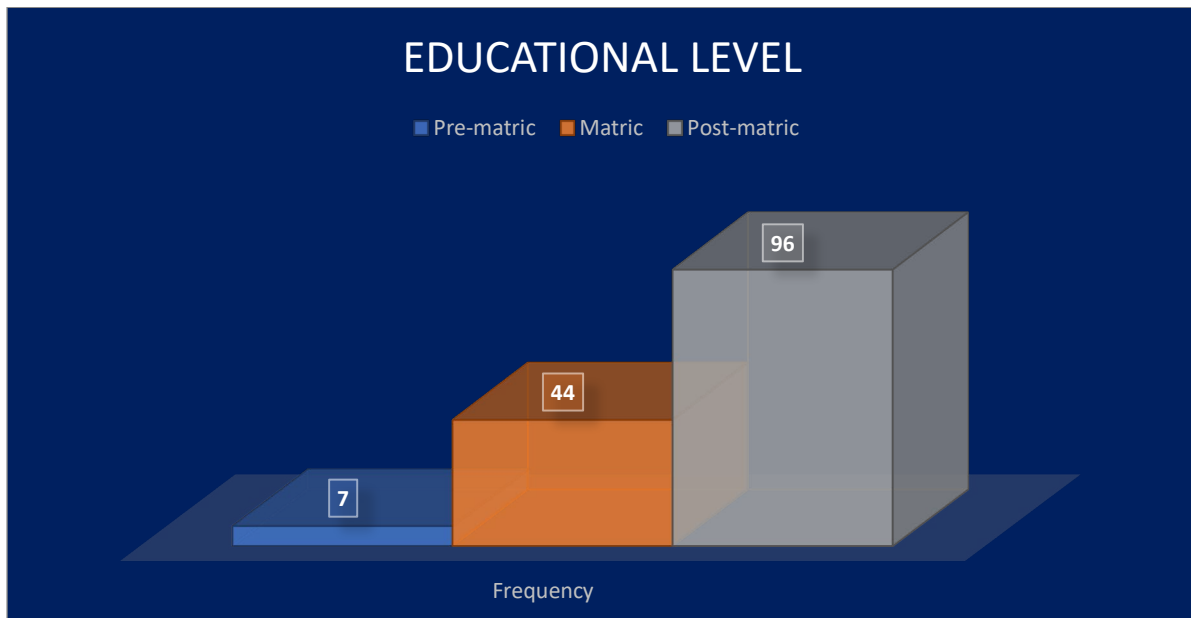
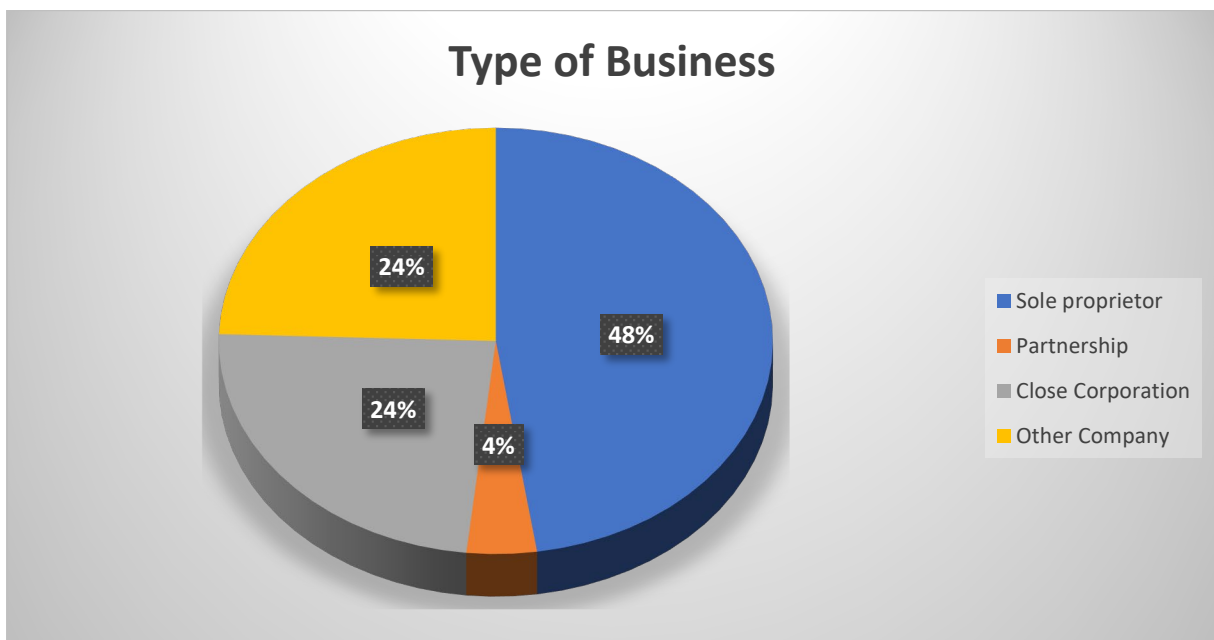


Figure 5.2 above shows that of the 147 respondents, 96 have had post matric education, which is also the larger group. This is followed by 44 respondents who had matric education only, and lastly 7 respondents who had pre-matric education. Thus, the large number of respondents are well educated. Of the 50 female respondents, 29 had either matric or post matric education, and 76 of the 97 male respondents also had matric or post matric education.

5.2.4 Business Analysis

5.2.4.1 Type of business

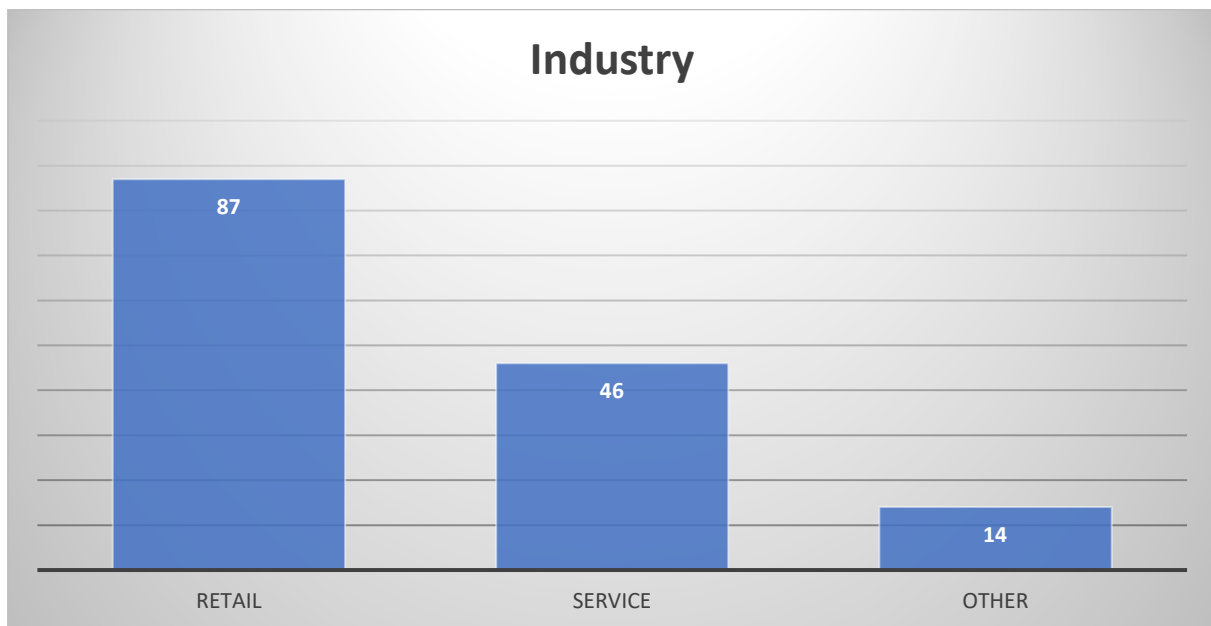
Figure 5. 3 Type of business



From the chart above, 48 percent of the respondents were sole proprietors of their businesses, followed by close corporations and other types such as private companies, which had 24 percent. Partnerships were only 4 percent of the total respondents.

5.2.4.2 Industry

Figure 5. 4 Sector



From the above figure, 87 of the 147 respondents were in the retail sector, 46 in the service and 14 in other sectors.

5.2.4.4 Number of employees

Table 5. 4 Number of employees

		Frequency	Percent
Number of Employees	Below 5	17	11,6
	6-10	15	10,2
	11-20	60	40,8
	21-50	41	27,9
	50 and Above	14	9,5
	Total	147	100,0

From the above table, 17 or 11.6% of the businesses employed less than 5 people. 15 or 10.2% employed 6-10 people, 41 or 27.9% employed 21-50 people, 14 or 9.5% employed 50 people or more, but most SMEs employed between 11-20 people, which was 60 or 40.8% of respondents.

5.2.4.5 Age of the business

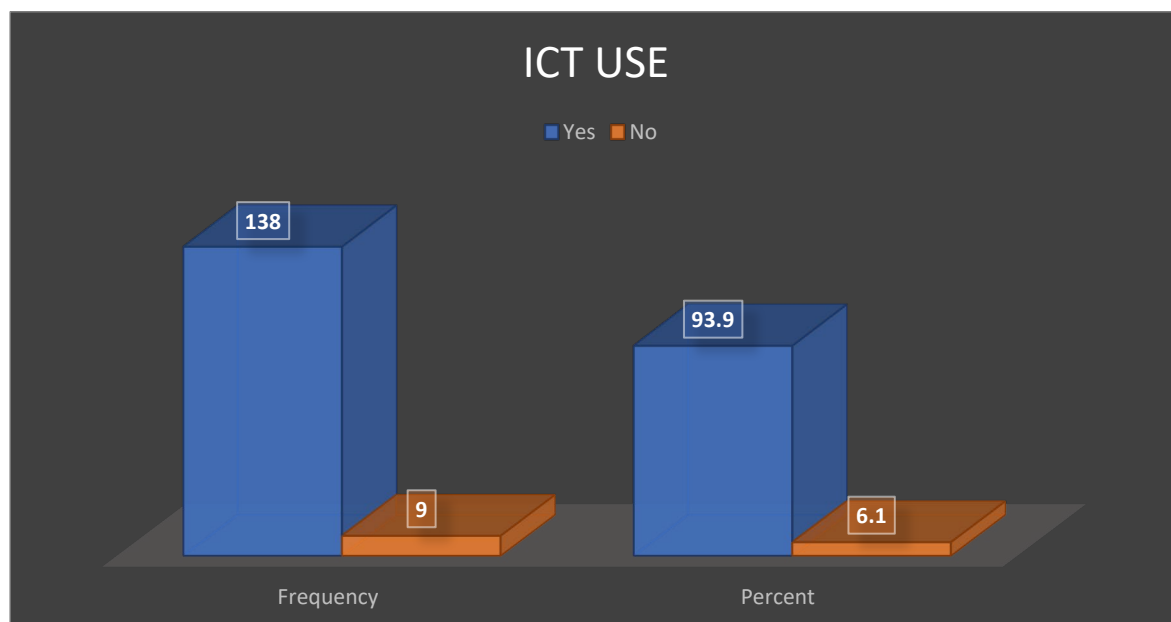
Table 5. 5 Age of business

		Frequency	Percent
Age of business	Less than 1year	7	4,8
	1-5	57	38,8
	6-10	56	38,1
	11-15	13	8,8
	15>	14	9,5
	Total	147	100,0

The table above shows that most of the SMEs from respondents have been in operation between 1-5 years, which was 57 or 38.8%, and those that have operated 6-10 years, which was 56 or 38.1%. Those that had operated less than a year were 7 or 4.8%, and those that operated 11-15 years were 13 or 8.8%. Lastly, those that have operated more than 15 years were 14 or 9.5%.

5.2.5 ICT Use

Figure 5. 5 ICT Use



The figure above shows the level of ICT use by respondents, and shows that 138 of the 147 respondents, or 93.9% of the respondents use some form of ICT in their businesses. Only 9 or 6.1% did not use ICT to run their businesses or as a form to operate their businesses.

5.3 RELIABILITY OF TEST RESULTS

The Cronbach alpha was used as it measures reliability and the true nature of data. The reliability test score or Rule of Thumb states that anything above 0.7 is recommended, and anything lower is deemed questionable, poor or unacceptable (Taber, 2018).

5.3.1 Assessing Reliability of ICT Determinants

The next section will assess the reliability of the questions under the various constructs being tested under the determinants of ICT adoption.

5.3.1.1 Perceived ease of use

Table 5. 6 Test for Reliability perceived ease of use

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0,889	0,889	2

Table 5.6 above shows the reliability measure of the perceived ease of use construct. The number of questions were 2 and collectively they had a Cronbach's Alpha of 0.889, which is well above the recommended 0.7, which shows that the data was extremely reliable.

5.3.1.2 Perceived Usefulness

Table 5. 7 Test for Reliability perceived usefulness

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0,853	0,858	4

Table 5.7 above shows the reliability measure of the perceived usefulness construct. The number of questions were 4 and collectively they had a Cronbach's Alpha of 0.853, which is well above the recommended 0.7 which shows that the data was extremely reliable.

5.3.1.3 Entrepreneurial Orientation

Table 5. 8 Test for Reliability entrepreneurial orientation

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0,865	0,842	4

The table 5.8 above shows the reliability measure of the entrepreneurial orientation construct. The number of questions were 4 and collectively they had a Cronbach's Alpha of 0.865 which is well above the recommended 0.7 which shows that the data was extremely reliable.

5.3.1.4 Entrepreneurial Passion

Table 5. 9 Test for Reliability entrepreneurial passion

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0,883	0,858	2

Table 5.9 above shows the reliability measure of the entrepreneurial passion construct. The number of questions were 2, and collectively, they had a Cronbach's Alpha of 0.883, which is well above the recommended 0.7, which shows that the data was extremely reliable.

5.3.1.5 Personal Factors

Table 5. 10 Test for Reliability personal factors

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0,843	0,885	3

Table 5.10 above shows the reliability measure of the personal factors construct. The number of questions were 3 and collectively they had a Cronbach's Alpha of 0.843, which is well above the recommended 0.7, which shows that the data was extremely reliable.

5.3.1.6 Business Characteristics

Table 5. 11 Test for Reliability business characteristics

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0,860	0,871	7

Table 5.11 above shows the reliability measure of the business characteristics construct. The number of questions were 7 and collectively they had a Cronbach's Alpha of 0.853, which is well above the recommended 0.7, which shows that the data was extremely reliable.

5.3.1.7 Performance

Table 5. 12 Test for Reliability performance

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0,815	0,813	3

Table 5.12 above shows the reliability measure of the perceived usefulness construct. The number of questions were 3 and collectively they had a Cronbach's Alpha of 0.815, which is well above the recommended 0.7, which shows that the data was extremely reliable.

Therefore, as the information above shows, all the constructs had a score above the 0.7, which is recommended, and which shows that all the constructs were reliable.

5.3.2 Reliability Test of ICT Use

Table 5. 13 Reliability of ICT Use

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0,849	0,862	2

The above table shows the test of ICT use and the Cronbach's Alpha was 0.849, which is very reliable as it is above the recommended 0.7.

5.4 NORMALITY OF DATA

It was crucial to test if the data was normally distributed to improve the quality of research results. To test for normality of data, the researcher used Kolmogorov-Smirnov's test. The test was conducted on all variables. The value of the test should be above 0.05, showing that normality was assumed on the dependent variable, which is ICT use (Doane & Seward, 2011).

5.4.1 Test of Normality

Table 5. 14 Normality Test

Variables	Kolmogorov-Smirnov ^a
-----------	---------------------------------

	Statistic	df	Sig.
ICT Adoption	0.087	138	0.254
Perceived ease of use	0.164	138	0.112
Perceived usefulness	0.145	138	0.187
Entrepreneurial Orientation	0.126	138	0.356
Entrepreneurial Passion	0.188	138	0.239
Personal Factors	0.147	138	0.144
Business Characteristics	0.159	138	0.301
Performance	0.178	138	0.133

The value of the test (sig; 0.087) was above 0.05, showing that normality was assumed on the dependent variable, which is ICT adoption. Moreover, the test for normality on independent variables also showed that the data was distributed normally since all the value were above 0.05. Perceived ease of use shows a value test of (sig; 0.164), perceived usefulness (sig; 0.145), entrepreneurial orientation (sig; 0.126), entrepreneurial passion (sig; 0.188), personal factors (sig; 0.147), business characteristics (sig; 0.159) and performance (sig; 0.178), which show that all the constructs were above 0.05, showing that the normality of the independent variables which is the determinants of ICT adoption are assumed.

5.4.2 Determinants Affecting ICT Adoption

5.4.2.1 Perceived ease of use

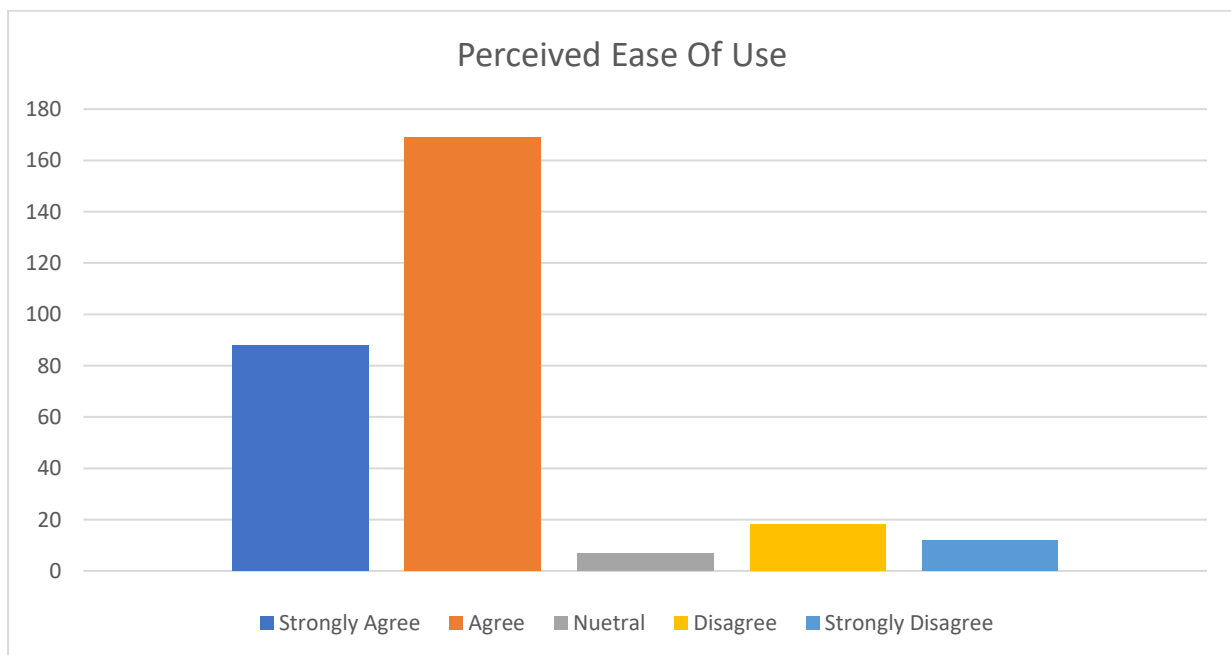
Table 5. 15 Perceived Ease of Use Normality

1. As a business owner I believe ICT helps me to run my business smoothly.
2. ICT has helped me to better manage my business.

PEOUQ1 and PEOUQ2 refer to the questions above.

Questions	PEOU Q1	PEOU Q2
Skewness	1,660	1,490
Std. Error of Skewness	0,200	0,200
Kurtosis	1,035	1,214
Std. Error of Kurtosis	0,397	0,397

From the table above the z-values for questions relating to perceived ease of use as shown above are +1.66 and +1.49 for skewness. The z-values for kurtosis are +1.035 and +1.214. These values are within the margin of ± 1.96 which shows that the data is slightly skewed but normally distributed.

Figure 5. 6 Distribution of Perceived Ease of Use

The figure above shows the skewness as well as the distribution of perceived ease of use with regards to ICT use by SMEs. Though skewed, it shows how the data is normally distributed. Thus, from the above results, it shows that the data is normally distributed.

5.4.2.2 Perceived usefulness

Table 5. 16 Perceived usefulness Normality

3. ICT has helped increased the work rate of my employees
4. Adopting ICT makes life simpler for me and my workers
5. ICT is helping me to have a competitive advantage over my competitors and increasing my revenue or profits
6. ICT is helping my business to conclude transactions quicker

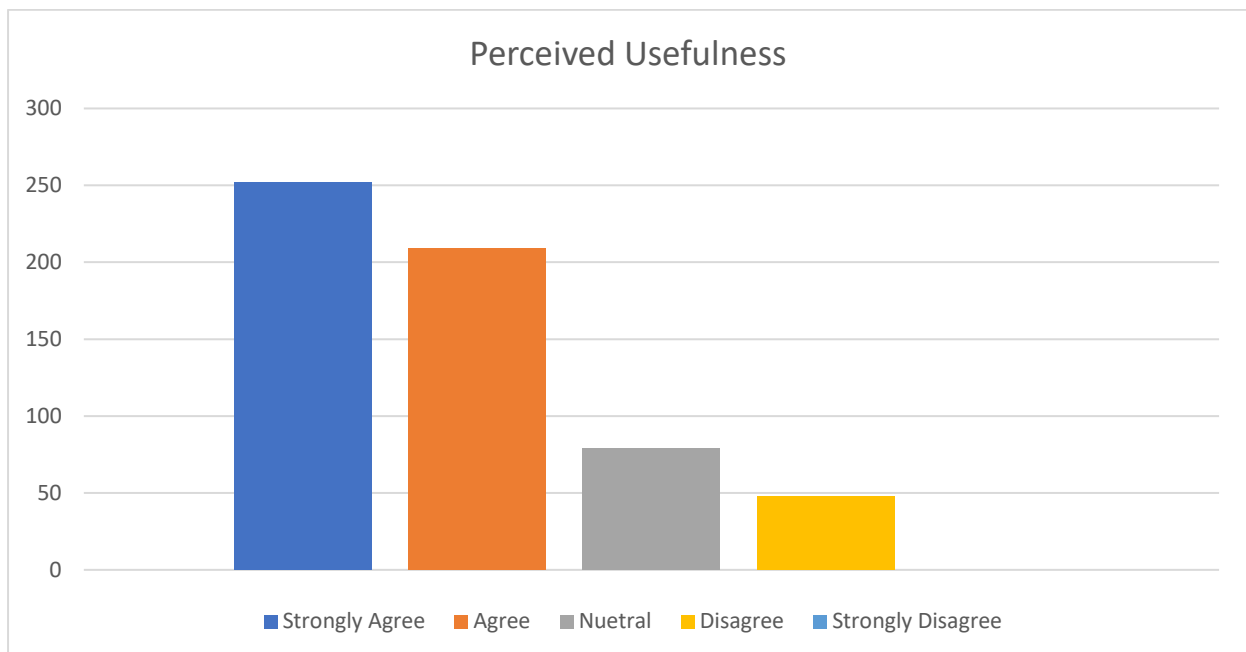
PUQ3, PUQ4, PUQ5 and PUQ6 refer to the questions above.

Questions	PU Q3	PU Q4	PU Q5	PU Q6
Skewness	0,101	0,209	1,102	1,705
Std. Error of Skewness	0,200	0,200	0,200	0,200

Kurtosis	-1,036	-0,594	-0,035	1,310
Std. Error of Kurtosis	0,397	0,397	0,397	0,397

From the table above, the z-values for questions relating to perceived usefulness shown above are +0.101, 0.209, 1.102 and +1.705 for skewness. The z-values for kurtosis are -1.036, -0.594, -0.035 and +1.310. These values are within the margin of ± 1.96 , which shows that the data is slightly skewed but normally distributed.

Figure 5. 7 Distribution of Perceived usefulness



The figure above shows the skewness as well as the distribution of perceived usefulness with regards to ICT use by SMEs. Though skewed, it shows how the data is normally distributed. Thus, from the above results, it shows that the data is normally distributed.

5.4.2.3. Entrepreneurial orientation

Table 5. 17 Entrepreneurial orientation Normality

7. ICT is riskier and more challenging to implement
8. ICT helps me to be a better leader or manager
9. Using ICT helps me and my business to be more creative and innovative

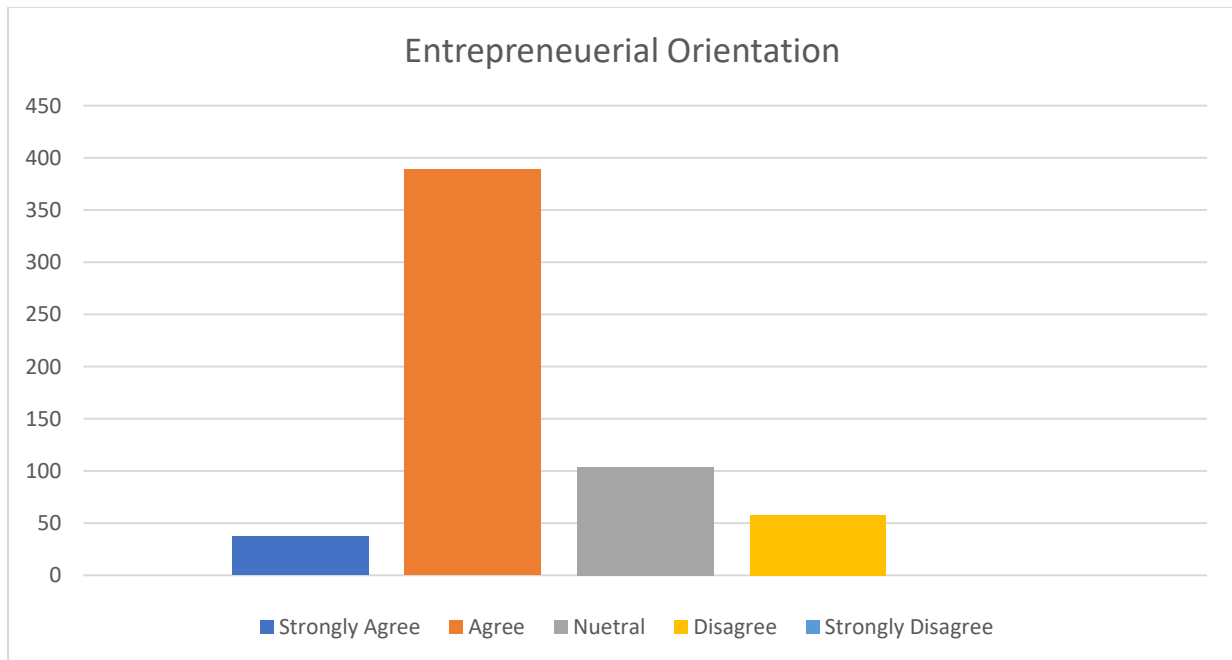
10. ICT helps to gather information about competitors

EOQ7, EOQ8, EOQ9 and EOQ10 refer to the questions above.

Questions	EO Q7	EO Q8	EO Q9	EO Q10
Skewness	1,547	1,304	1,507	0,013
Std. Error of Skewness	0,200	0,200	0,200	0,200
Kurtosis	1,915	1,741	1,734	-0,839
Std. Error of Kurtosis	0,397	0,397	0,397	0,397

From the table above, the z-values for questions relating to entrepreneurial orientation are +1.547, +1.304, 1.507 and +0.013 for skewness. The z-values for kurtosis are +1.915, +1.741, +1.734 and -0.839. These values are within the margin of ± 1.96 , which shows that the data is slightly skewed but normally distributed.

Figure 5. 8 Distribution of Entrepreneurial Orientation



The figure above shows the skewness as well as the distribution of entrepreneurial orientation with regards to ICT use by SMEs. Though skewed, it shows how the data is normally distributed. Thus, from the above results, it shows that the data is normally distributed.

5.4.2.4 Entrepreneurial passion

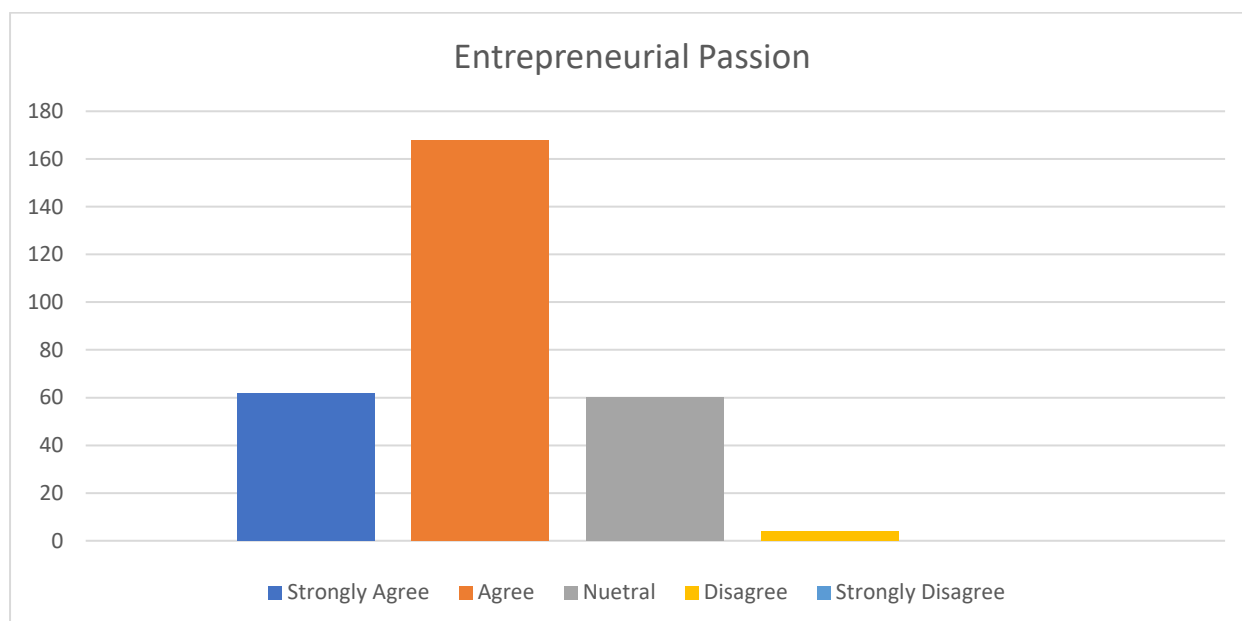
Table 5. 18 Entrepreneurial passion Normality

11. As an owner or manager, I have a strong passion for ICT
12. ICT motivates me to make my business perform better

EPQ11 and EP12 refer to the questions above.

Questions	EP Q11	EP Q12
Skewness	-0,159	0,774
Std. Error of Skewness	0,200	0,200
Kurtosis	-1,211	1,581
Std. Error of Kurtosis	0,397	0,397

From the table above, the z-values for questions relating to entrepreneurial passion as shown above are -0.159 and +0.774 for skewness. The z-values for kurtosis are -1.211 and +1.581. These values are within the margin of ± 1.96 , which shows that the data is slightly skewed but normally distributed.

Figure 5. 9 Distribution of Entrepreneurial passion

The figure above shows the skewness as well as the distribution of entrepreneurial passion with regards to ICT use by SMEs. Though skewed, it shows how the data is normally distributed. Thus, from the above results, it shows that the data is normally distributed.

5.4.2.5. Personal factors

Table 5. 19 Personal Factors Normality

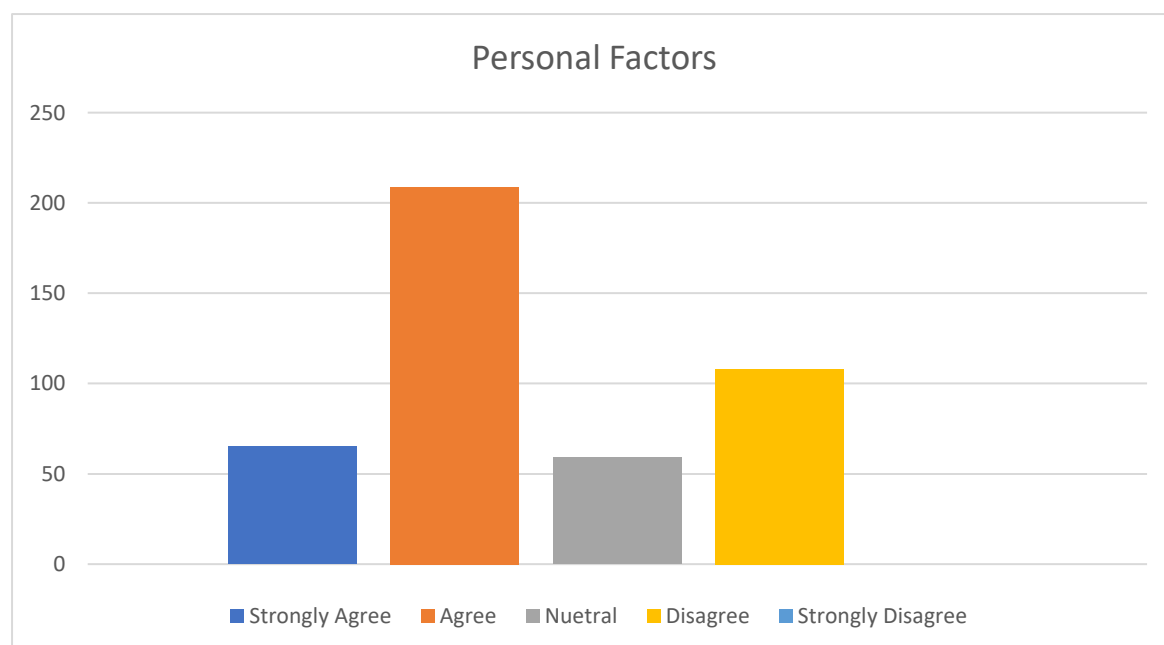
13. My background played a role in me adopting ICT.
14. At my age I find ICT easier to use.
15. My level of education helps in understanding ICT faster and its value.

PFQ13, PFQ14 and PFQ15 refer to the questions above.

Questions	PF Q13	PF Q14	PF Q15
Skewness	-1,105	0,758	0,038
Std. Error of Skewness	0,200	0,200	0,200
Kurtosis	-0,203	0,383	-0,234
Std. Error of Kurtosis	0,397	0,397	0,397

From the table above, the z-values for questions relating to personal factors shown above are -1.105, +0.758 and +0.038 for skewness. The z-values for kurtosis are -0.203, +0.383 and -0.234. These values are within the margin of ± 1.96 , which shows that the data is slightly skewed but normally distributed.

Figure 5. 10 Distribution of personal factors



The figure above shows the skewness as well as the distribution of personal factors with regards to ICT use by SMEs. Though skewed, it shows how the data is normally distributed. Thus, from the above results, it shows that the data is normally distributed.

5.4.2.6. Business characteristics

Table 5. 20 Business Characteristics Normality

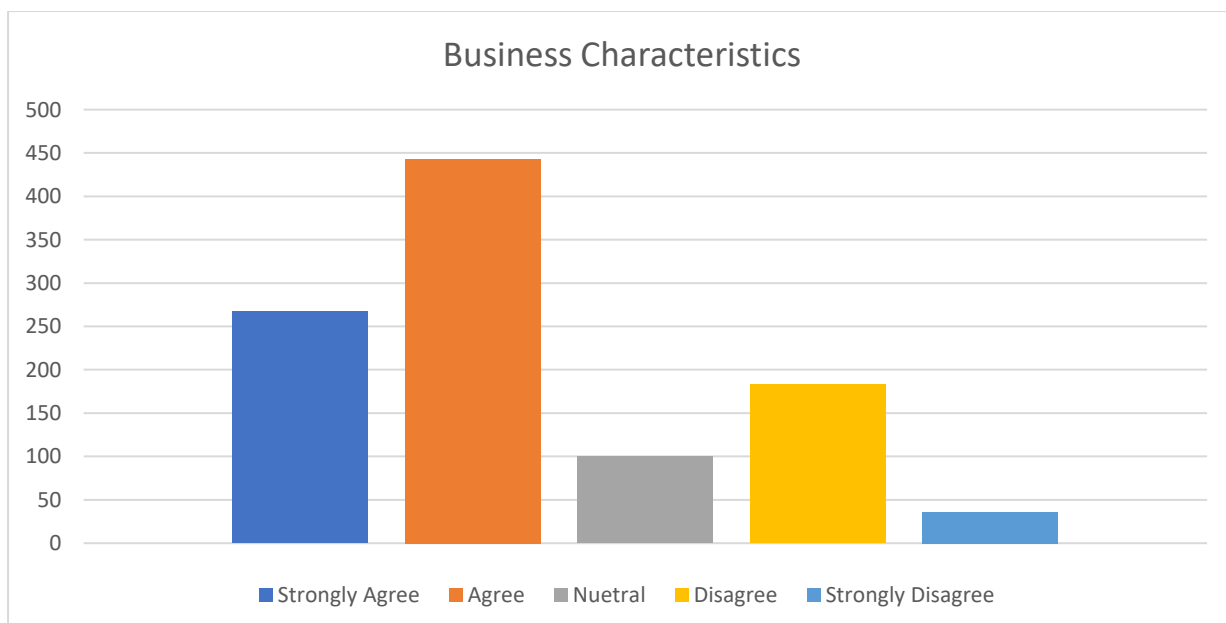
16. The size of my firm requires that I use ICT.
17. The sector in which my firm competes needs ICT to be competitive
18. The performance of my firm solely depends on ICT use
19. My firm uses Social Media to communicate with customers
20. Social Media helps to better market my business
21. The location of my business does not allow for ICT due to geographical location
22. ICT is not easily accessible to my business

BCQ16, BCQ17, BCQ18, BCQ19, BCQ20, BCQ21 and BCQ22 refer to the questions above.

Questions	BC Q16	BC Q17	BC Q18	BC Q19	BC Q20	BC Q21	BC Q22
Skewness	1,296	1,391	1,105	0,197	0,826	-0,533	-0,418
Std. Error of Skewness	0,200	0,200	0,200	0,200	0,200	0,200	0,200
Kurtosis	1,682	1,620	0,683	-0,561	-0,392	-0,515	-0,519
Std. Error of Kurtosis	0,397	0,397	0,397	0,397	0,397	0,397	0,397

From the table above, the z-values for questions relating to business characteristics shown above are +1.296, +1.391, +1.105, +0.197, +0.826, -0.533 and -0.418 for skewness. The z-values for kurtosis are +1.682, +1.620, +0.683, -0.561, -0.392, -0.515 and -0.519. These values are within the margin of ± 1.96 , which shows that the data is slightly skewed but normally distributed.

Figure 5. 11 Distribution of business characteristics



The figure above shows the skewness as well as the distribution of business characteristics with regards to ICT use by SMEs. Though skewed, it shows how the data is normally distributed. Thus, from the above results, it shows that the data is normally distributed.

5.4.2.7. Performance

Table 5. 21 Performance Normality

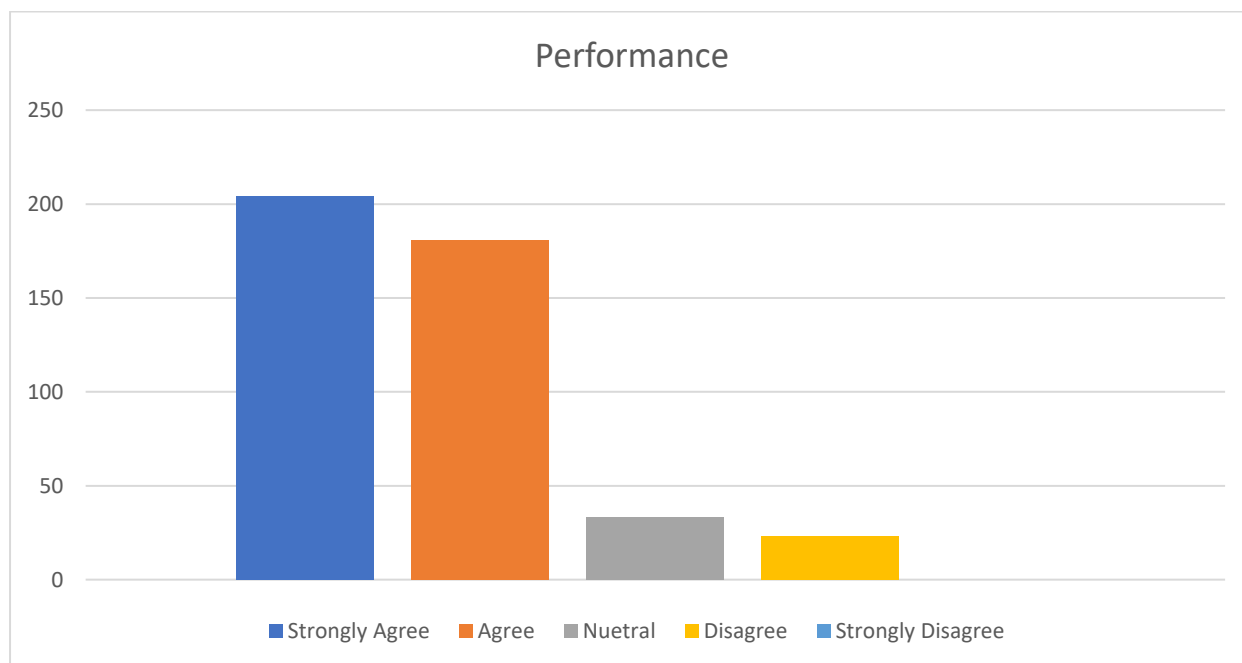
23. Introducing ICT has increased my revenue and profits
24. ICT has improved communication and market interactivity with customers
25. ICT has improved the efficiency of my business and overall performance

PQ23, PQ24 and PQ25 refer to the questions above.

Questions	P Q23	P Q24	P Q25
Skewness	1,261	0,671	1,627
Std. Error of Skewness	0,200	0,200	0,200
Kurtosis	1,548	0,152	1,122
Std. Error of Kurtosis	0,397	0,397	0,397

From the table above the z-values for questions relating to performance shown above are +1.261, +0.671 and +1.627 for skewness. The z-values for kurtosis are +1.548, +0.152 and +1.122. These values are within the margin of ± 1.96 , which shows that the data is slightly skewed but normally distributed.

Figure 5. 12 Distribution of performance



The figure above shows the skewness as well as the distribution of performance with regards to ICT use by SMEs. Though skewed, it shows how the data is normally distributed. Thus, from the above results, it shows that the data is normally distributed.

5.5 CORRELATION ANALYSIS

Correlation analysis refers to a statistical method which is used for discovery of a relationship between two variables and how strong that relationship is (Senthilnathan & Samithamby, 2019). Correlation coefficient represents a numerical measure of correlation between the relative movements of two variables from the observed data set. In case of correlation value, which is exactly 0, there is no linear relationship between the observed variables. Pearson's r can range from -1 to 1. An r of -1 indicates a perfect negative linear relationship between variables, an r of 0 indicates no linear relationship between variables, and an r of 1 indicates a perfect positive linear relationship between variables. There are many types of different correlation coefficients, but for this study the Pearson correlation coefficient (denoted as r) that measures the strength and direction of the linear relationship between two variables

will be used (Senthilnathan & Samithamby, 2019). Therefore, the following tables will seek to establish the relationship between ICT adoption/use with the various independent variables shown in the author's conceptual model.

5.5.1 Correlation between ICT Use and Perceived Ease of Use

Table 5. 22 ICT Use and Perceived Ease of Use

		PEOU Q1	PEOU Q2
ICT Use	Pearson Correlation	.547**	.527**
	Sig. (2-tailed)	0,000	0,000
	N	147	147

** . Correlation is significant at the 0.01 level (2-tailed).

Table 5.22 shows the correlation between ICT use by SMEs, with the owner's perceived ease of use towards ICT. Perceived Ease of Use Question 1 (PEOU Q1) has a positive R-value of 0.547, which shows that it is positively related with ICT use. This also holds true for PEOU Q2 which has an R-value of 0.527. Furthermore, the table shows that the relationship is also significant. This is shown by the Sig. value of 0.000 for both PEOU Q1 and Q2, which is above the significance level of 0.01 as shown below the table. Hence there is a positive and significant correlation between ICT use and perceived ease of use.

5.5.2 Correlation between ICT Use and Perceived Usefulness

Table 5. 23 ICT Use and Perceived Usefulness

		PU Q3	PU Q4	PU Q5	PU Q6
ICT Use	Pearson Correlation	.367**	.325**	.544**	.755**
	Sig. (2-tailed)	0,000	0,000	0,000	0,000
	N	147	147	147	147

** . Correlation is significant at the 0.01 level (2-tailed).

Table 5.23 shows the correlation between ICT use by SMEs, with the owner's perceived usefulness towards ICT. Perceived Usefulness Question 3 (PU Q3) has a positive R-value of 0.367, which shows that it is positively related with ICT use. The same can be seen for PU Q4, Q5 and Q6, which have R-values of 0.325, 0.544 and 0.755 respectively. The most significant is PU Q6 as it has the highest value. Furthermore, the table shows that the relationship is also significant. This is shown by the Sig. value of 0.000, which is above the significance level of 0.01 as shown below the table for all the questions relating to perceived usefulness. Hence, there is a positive and significant correlation between ICT use and perceived usefulness.

5.5.3 Correlation between ICT Use and Entrepreneurial Orientation

Table 5. 24 ICT Use and Entrepreneurial Orientation

		EO Q7	EO Q8	EO Q9	EO Q10
ICT Use	Pearson	-0,133	.516**	.325**	.205*
	Correlation				
	Sig. (2-tailed)	0,107	0,000	0,000	0,013
	N	147	147	147	147

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 5.24 shows the correlation between ICT use by SMEs, with the owner's entrepreneurial orientation towards ICT. Entrepreneurial Orientation Question 7 (EO Q7) has a negative R-value of -0.133, which shows that it is negatively related with ICT use. It also has a significance level of 0.107, which shows that there is no significant level between ICT risk/implementation (EO Q7), and the use of ICT. The same cannot be said, however, for EO Q8, Q9 and Q10, which have positive correlation R-values of 0.516, 0.325 and 0.205 respectively. The most significant is EO Q8 as it has the highest value. Furthermore, the table shows that the relationship is also significant for EO Q8-Q10, which is shown by the Sig. value of 0.000, which is above the significance level of 0.01 and 0.05 for EO Q10 as shown below the table for all the questions relating to entrepreneurial orientation. Hence there is mostly a positive and significant correlation between ICT use and entrepreneurial orientation.

5.5.4 Correlation between ICT Use and Entrepreneurial Passion

Table 5. 25 ICT Use and Entrepreneurial Passion

		EP Q11	EP Q12
ICT Use	Pearson Correlation	.308**	.634**
	Sig. (2-tailed)	0,000	0,000
	N	147	147

** . Correlation is significant at the 0.01 level (2-tailed).

Table 5.25 shows the correlation between ICT use by SMEs, with the owner's entrepreneurial passion towards the use of ICT. Entrepreneurial Passion Question 11 (EP Q11) has a positive R-value of 0.308, which shows that it is positively related with ICT use. This also holds true for EP Q12, which has an R-value of 0.634, which is the higher of the two making it more significant. Furthermore, the table shows that the relationship is also significant shown by the Sig. value of 0.000 for both EP Q11 and Q12, which is above the significance level of 0.01 as shown below the table. Hence, there is a positive and significant correlation between ICT use and perceived ease of use.

5.5.5 Correlation between ICT Use and Personal Factors

Table 5. 26 ICT Use and Personal Factors

		PF Q13	PF Q14	PF Q15
ICT Use	Pearson Correlation	.174*	-0,054	0,041
	Sig. (2-tailed)	0,035	0,520	0,625
	N	147	147	147

*. Correlation is significant at the 0.05 level (2-tailed).

Table 5.26 shows the correlation between ICT use by SMEs, with the owner's personal factors towards the use of ICT. Personal Factors Question 13 (EP Q11) has a positive R-value of 0.174, which shows that it is positively related to ICT use. It also has a significance level of 0.035. This does not hold true for PF Q14, which has an R-value of -0.054, and a significance level of 0.520, which shows that it has a negative relationship with ICT adoption and not significant. PF Q15 has a positive R-value. However, the significance value of 0.625 is higher than the recommended, which

shows that it is also not significant. Therefore, personal factors with relation to ICT use or adoption are not significant. Hence there is, to a large extent, no correlation between ICT use and personal factors.

5.5.6 Correlation between ICT Use and Business Characteristics

Table 5. 27 ICT Use and Business Characteristics

		BC Q16	BC Q17	BC Q18	BC Q19	BC Q20	BC Q21	BC Q22
ICT Use	Pearson Correlation	.363**	.355**	.494**	0,096	.181*	-.460**	-.467**
	Sig. (2-tailed)	0,000	0,000	0,000	0,249	0,028	0,000	0,000
	N	147	147	147	147	147	147	147

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 5.27 shows the correlation between ICT use by SMEs, with the owner's business characteristics towards the use of ICT. Business Characteristics Question 16 (BC Q16) has a positive R-value of 0.363, which shows that it is positively related with ICT use. This is also the same for BC Q17 and Q18, which have R-values of 0.355 and 0.494 respectively. BC Q16-Q18 have significance levels of 0.000, which means they are all positively correlated and are significant to ICT use. However, though positively correlated with an R-value of 0.096, BC Q19 is not significant as shown with its high significance level of 0.249. BC Q20 is positively correlated as it has a positive R-value of 0.181 and a significance level of 0.028, which is above the 0.05 recommended. The remaining questions BC 21 And BC Q22, though significant as shown by their levels of 0.000, are negatively correlated, which means they have a negative relationship with ICT use. Therefore, the business characteristics of the owner, to a larger extent, has a positive relationship with ICT adoption.

5.5.7 Correlation between ICT Use and Performance

Table 5. 28 ICT Use and Performance

		P Q23	P Q24	P Q25
ICT Use	Pearson Correlation	.722**	.408**	.748**
	Sig. (2-tailed)	0,000	0,000	0,000
	N	147	147	147

** . Correlation is significant at the 0.01 level (2-tailed).

Table 5.28 shows the correlation between ICT use by SMEs, with the performance of the business when ICT is adopted. The table clearly shows that there is a positive and significant relationship between ICT adoption and business performance. Performance Question 23 (P Q23), P Q24 and P Q25 all have positive R-values of 0.722, 0.408 and 0.748, which shows that it is positively related with ICT use. Furthermore, the table shows that the relationship is also significant. This is shown by the Sig. value of 0.000 for all three questions, which is above the significance level of 0.01 as shown below the table. Hence there is a very positive and significant correlation between ICT use or adoption and performance of the business.

5.6 REGRESSION ANALYSIS

This section will analyse various relationships between the dependent variable which is ICT adoption against the independent variables in order to test the hypotheses and decide to either accept or reject the hypotheses.

5.6.1 Relationship between Entrepreneurial Passion on ICT Adoption

Hypothesis 1 H_1 : Entrepreneurial Passion positively influences the adoption of ICT by SMEs.

5.6.1.1 Entrepreneurial passion and ICT adoption

Entrepreneurs with a strong passion are more motivated, persuasive, have larger social networks and more social capital (Ghobakhloo, 2011). Therefore, an entrepreneur who is passionate will seek more modern and inventive ways to grow their business or increase profitability. One such way is through the use of ICT.

Table 5. 29 Entrepreneurial Passion and ICT Adoption

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3,404	2	1,702	48,569	.000 ^b
	Residual	5,045	144	0,035		
	Total	8,449	146			

a. Dependent Variable: Does your firm use ICT?

b. Predictors: (Constant), ICT motivates me to make my business perform better. As an owner or manager, I have a strong passion for ICT.

The ANOVA test above which is $0.000 < \alpha$ at .05 shows that the results are statistically significant. The F-statistic value of ($F = 48,569$, $p < .000$) also shows that the results are significant. This indicates that the alternative hypothesis is accepted. This shows that the relationship between entrepreneurial passion and ICT adoption is positive and significant; and that the actual adoption of ICT is determined by the entrepreneurial passion of SME owners.

5.6.1.2 Regression results for hypothesis 1

Hypothesis 1 states that there is a significant positive relationship between entrepreneurial passion and the adoption of ICT among SMEs. To test hypothesis 1, regression analysis was done and presented as follows.

Table 5. 30 The relationship between entrepreneurial passion and adoption of ICT among SMEs

Model Summary^b						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.635 ^a	.403	.395	0.187	2.343	
a. Predictors: (Constant), EP Q11, EP Q12						
b. Dependent Variable: ICT Use						

Model	Unstandardised Coefficients		Standardised Coefficients	t	Sig.
	B	Std. Error	Beta		

1	(Constant)	.580	.056		10.381	.000
	EP Q11	-.010	.024	-.032	-.421	.674
	EP Q12	.258	.030	.651	8.617	.000

ICT adoption is $-0.010EP Q11 + 0,258EP Q12 + 0.580$

R Square = .403

R is the percentage variation explained by the two variables. Hence, the results show that 40.3% of ICT adoption variance is explained by the independent variable entrepreneurial passion in the model. Considering the unstandardised coefficients, findings show that the independent variable's entrepreneurial passion is a significant predictor of the dependent variable's ICT adoption. Findings further show that there is a significant positive relationship between entrepreneurial passion and the adoption of ICT among SMEs, which leads to the decision to accept the alternative hypothesis.

Conclusion on hypothesis 1

This hypothesis was tested using a regression model. Findings show that the independent variable's entrepreneurial passion is a significant predictor of the dependent variable's ICT adoption. The conclusion is that there is a positive relationship between entrepreneurial passion and the adoption of ICT among SMEs.

Table 5. 31: Conclusion on hypothesis 1

Tested hypotheses	Final decision
<i>H_a: Entrepreneurial passion positively influences the adoption of ICT by SMEs.</i>	Accepted

5.6.2 Relationship between Entrepreneurial Orientation and Adoption of ICT

Hypothesis 2 H₂: Entrepreneurial Orientation positively affects the adoption of ICT by SMEs.

5.6.2.1 Entrepreneurial orientation and ICT adoption

Entrepreneurial orientation (EO) is a strategy that is used by some firms to portray an organisation's managerial philosophies, how the firm behaves with regards to its

entrepreneurial nature, and the strategy-making process (Wales & William, 2015). Therefore, it is key for entrepreneurs to see the value of ICT in their businesses and implement it as part of their strategy to ensure improved performance.

Table 5. 32 Entrepreneurship Orientation and ICT Adoption

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.766	4	.691	17.275	.000 ^b
	Residual	5.683	142	0.040		
	Total	8.449	146			
a. Dependent Variable: Does your firm use ICT?						
b. Predictors: (Constant), ICT helps to gather information about competitors. Using ICT helps me and my business to be more creative and innovative., ICT is riskier and more challenging to implement., ICT helps me to be a better manager or leader.						

The ANOVA test above which is $0.000 < \alpha$ at .05 shows that the results are statistically significant. The F-statistic value of ($F = 17,275$, $p < .000$) also shows that the results are significant. This indicates that the alternative hypothesis is accepted. This shows that the relationship between entrepreneurial orientation and ICT adoption is positive and significant; and that the actual adoption of ICT is determined by the entrepreneurial orientation of SME owners.

5.6.2.2 Regression results for hypothesis 2

Hypothesis 2 states that there is a significant positive relationship between entrepreneurial orientation and the adoption of ICT among SMEs. To test hypothesis 2, regression analysis was done and presented as follows.

Table 5. 33: Regression results on the relationship between entrepreneurial orientation and adoption of ICT among SMEs

Model Summary ^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.572 ^a	.327	.308	.200	2.104
a. Predictors: (Constant), EO Q7, EO Q8, EO Q9, EO Q10					
b. Dependent Variable: ICT Use					

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.656	.115		5.704	.000
	EO Q7	.023	.032	.053	.703	.465
	EO Q8	.348	.055	.961	6.321	.000
	EO Q9	-.188	.054	-.501	-3.472	.001
	EO Q10	.002	.021	.008	.102	.919

ICT adoption is $0.023EO Q7+0,348EO Q8-0.188EO Q9+0.002 EO Q10+0.656$

R Square = .327

R is the percentage variation explained by the two variables. Hence, the results show that 32.7% of ICT adoption variance is explained by the independent variable entrepreneurial orientation in the model. Considering the unstandardised coefficients, findings show that the independent variable's entrepreneurial orientation is a significant predictor of the dependent variable's ICT adoption. Findings further show that there is a significant positive relationship between entrepreneurial orientation and the adoption of ICT among SMEs, which leads to the decision to accept the alternative hypothesis.

Conclusion on hypothesis 2

Table 5. 34: Conclusion on hypothesis 2

Tested hypotheses	Final decision
<i>H_{a2}: Entrepreneurial Orientation positively affects the adoption of ICT by SMEs.</i>	Accepted

5.6.3 Relationship between Personal Factors on ICT Adoption

Hypothesis 3 H₃: Personal Factors positively impacts the adoption of ICT by SMEs.

5.6.3.1 Personal factors and ICT adoption

These speak to the educational background of the entrepreneur, the age as well as their personal background. The type or level of education received shows how quick an individual can grasp ICT and its implementation in order to increase performance (Covin & Wales, 2011). Therefore, the regression analysis will look to show its impact in ICT and whether or not it is acceptable.

Table 5. 35 Personal Factors and ICT Adoption

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0,423	3	0,141	2,511	.061 ^b
	Residual	8,026	143	0,056		
	Total	8,449	146			

a. Dependent Variable: Does your firm use ICT?

b. Predictors: (Constant), My level of education helps in understanding ICT faster and its value., My background played a role in me adopting ICT., At my age I find ICT easier to use.

The ANOVA test above which is $0.061 < \alpha$ at .05 shows that the results are statistically insignificant. The F-statistic value of ($F = 2,511, p < .000$) also shows that the results are insignificant. This indicates that the alternative hypothesis is rejected. This shows that the relationship between personal factors and ICT adoption is positive and insignificant; and that the actual adoption of ICT is not determined by personal factors of SME owners.

5.6.3.2 Regression results for hypothesis 3

Hypothesis 3 states that there is an insignificant positive relationship between personal factors and the adoption of ICT among SMEs. To test hypothesis 3, regression analysis was done and presented as follows.

Table 5. 36 The relationship between personal factors and adoption of ICT among SMEs

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.224 ^a	.050	.030	0.237	2.190
a. Predictors: (Constant), PF Q13, PF Q14, PF Q15					
b. Dependent Variable: ICT Use					

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.926	.085		10.899	.000
	PF Q13	.050	.022	.199	2.315	.022
	PF Q14	-.058	.034	-.196	-1.716	.088
	PF Q15	.049	.045	.121	1.069	.287

ICT adoption is $0.050PF\ Q13 - 0.058PF\ Q14 + 0.049PF\ Q15 + 0.926$

R Square = .050

R is the percentage variation explained by the two variables. Hence, the results show that 50.0% of ICT adoption variance is explained by the independent variable personal factors in the model. Considering the unstandardised coefficients, findings show that the independent variable's personal factors is an insignificant predictor of the dependent variable's ICT adoption. Findings further show that there is an insignificant positive relationship between personal factors and the adoption of ICT among SMEs, which leads to the decision to reject the alternative hypothesis.

Conclusion on hypothesis 3

This hypothesis was tested using a regression model. Findings show that the independent variable's personal factors are an insignificant predictor of the dependent variable's ICT adoption. The conclusion is that there is no significant relationship between personal factors and the adoption of ICT among SMEs.

Table 5. 37: Conclusion on hypothesis 3

Tested hypotheses	Final decision
<i>H_a: Personal factors have no significant influences on the adoption of ICT by SMEs.</i>	Rejected

5.6.4 Relationship between Perceived Usefulness and Adoption of ICT

Hypothesis 4 H₄: Perceived Usefulness positively affects the adoption of ICT by SMEs.

5.6.4.1 Perceived Usefulness and ICT adoption

Perceived Usefulness (PU) of ICT can be shown as the impact of ICT to a person achieving increased profitability or revenue. Perceived usefulness basically shows an individual's attitude towards ICT and their continued use of it (Lee *et al.*, 2013). Therefore, we will look to establish whether perceived usefulness has a significant relationship with ICT adoption through regression analysis.

Table 5. 38 Perceived Usefulness and ICT Adoption

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.276	4	1.319	59.018	.000 ^b
	Residual	6.173	142	0.022		
	Total	8.449	146			
a. Dependent Variable: Does your firm use ICT?						
b. Predictors: (Constant), ICT is helping my business to conclude transactions quicker., ICT has helped increase the work rate of my employees., Adopting ICT makes life simpler for me and my workers., ICT is helping me to have a competitive advantage over my competitors and increasing my revenue or profits.						

The ANOVA test above which is $0.000 < \alpha$ at .05 shows that the results are statistically significant. The F-statistic value of ($F = 59,018$, $p < .000$) also shows that the results are significant. This indicates that the alternative hypothesis is accepted. This shows that the relationship between perceived usefulness and ICT adoption is positive and

significant; and that the actual adoption of ICT is determined by its perceived usefulness by SME owners.

5.6.4.2 Regression results for hypothesis 4

Hypothesis 4 states that there is a significant positive relationship between perceived usefulness and the adoption of ICT among SMEs. To test hypothesis 4, regression analysis was done and presented as follows.

Table 5. 39 Regression results on the relationship between perceived usefulness and adoption of ICT among SMEs

Model Summary ^b						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.790 ^a	.624	.614	.149	1.862	
a. Predictors: (Constant), PU Q3, PU Q4, PU Q5, PU Q6						
b. Dependent Variable: ICT Use						

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.873	.050		17.552	.000
	PU Q3	-.012	.020	-.048	-.600	.550
	PU Q4	-.127	.059	-.312	-4.404	.000
	PU Q5	.005	.030	.019	.179	.858
	PU Q6	.279	.025	.971	11.090	.000

ICT adoption is $-0.012PU Q3 - 0.127PU Q4 + 0.005PU Q5 + 0.279PU Q6 + 0.873$

R Square = .624

R is the percentage variation explained by the two variables. Hence, the results show that 62.4% of ICT adoption variance is explained by the independent variable's perceived usefulness in the model. Considering the unstandardised coefficients, findings show that the independent variable's perceived usefulness is a significant predictor of the dependent variable's ICT adoption. Findings further show that there is a significant positive relationship between perceived usefulness and the adoption of ICT among SMEs, which leads to the decision to accept the alternative hypothesis.

Conclusion on hypothesis 4

Table 5. 40 Conclusion on hypothesis 4

Tested hypotheses	Final decision
<i>H_{a4}: Perceived Usefulness positively affects the adoption of ICT by SMEs.</i>	Accepted

5.6.5 Relationship between Perceived Ease of Use and Adoption of ICT

Hypothesis 5 H₅: Perceived Ease of Use positively affects the adoption of ICT by SMEs.

5.6.5.1 Perceived Ease of Use and ICT adoption

Perceived Ease of Use (PEOU) can be defined as how easy ICT is to use to certain individuals. Studies have shown that the perceived ease of use relates positively to users' attitudes and the effortlessness of using the system (Ho, Wong & Lee, 2011). Therefore, we will look to establish whether perceived ease of use has a significant relationship with ICT adoption through regression analysis.

Table 5. 41 Perceived Ease of Use and ICT Adoption

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.713	2	1.356	34.048	.000 ^b
	Residual	5.736	144	0.040		
	Total	8.449	146			
a. Dependent Variable: Does your firm use ICT?						
b. Predictors: (Constant), ICT has helped me to better manage my business. As a business owner I believe ICT helps me to run my business smoothly.						

The ANOVA test above which is $0.000 < \alpha$ at .05 shows that the results are statistically significant. The F-statistic value of ($F = 34,048$, $p < .000$) also shows that the results are significant. This indicates that the alternative hypothesis is accepted. This shows that the relationship between perceived ease of use and ICT adoption is positive and

significant; and that the actual adoption of ICT is determined by its perceived ease of use by SME owners.

5.6.5.2 Regression results for hypothesis 5

Hypothesis 5 states that there is a significant positive relationship between perceived ease of use and the adoption of ICT among SMEs. To test hypothesis 5, regression analysis was done and presented as follows.

Table 5. 42 Regression results on the relationship between perceived ease of use and adoption of ICT among SMEs

Model Summary ^b						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.567 ^a	.321	.312	.200	2.043	
a. Predictors: (Constant), PEOU Q1, PEOU Q2						
b. Dependent Variable: ICT Use						

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.768	.039		19.631	.000
	PEOU Q1	.088	.029	.347	3.031	.003
	PEOU Q2	.060	.028	.249	2.169	.032

ICT adoption is $0.880\text{PEOU Q1} + 0,060\text{PEOU Q2} + 0.768$

R Square = .321

R is the percentage variation explained by the two variables. Hence, the results show that 32.1% of ICT adoption variance is explained by the independent variable's perceived ease of use in the model. Considering the unstandardised coefficients, findings show that the independent variable's perceived ease of use is a significant predictor of the dependent variable's ICT adoption. Findings further show that there is a significant positive relationship between perceived ease of use and the adoption of ICT among SMEs, which leads to the decision to accept the alternative hypothesis.

Conclusion on hypothesis 5

Table 5. 43 Conclusion on hypothesis 5

Tested hypotheses	Final decision
<i>H_{a5}: Perceived Ease of Use positively affects the adoption of ICT by SMEs.</i>	Accepted

5.6.6 Relationship between Business Characteristics and Adoption of ICT

Hypothesis 6 H₆: Business Characteristics positively impacts the adoption of ICT by SMEs.

5.6.6.1 Business Characteristics and ICT adoption

Business Characteristics (BC) can be defined as attributes that are peculiar to enterprises and can influence their behaviour and decisions. In the context of this study, business characteristics are attributes of SMEs that can influence the adoption of ICT such as size and sector, ICT dependency, internet accessibility and social media use. Therefore, we will look to establish whether business characteristics have a significant relationship with ICT adoption through regression analysis.

Table 5. 44 Business Characteristics and ICT Adoption

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.767	7	0.538	15.975	.000 ^b
	Residual	4.682	139	0.034		
	Total	8.449	146			
a. Dependent Variable: Does your firm use ICT?						
b. Predictors: (Constant), ICT is not easily accessible to my business., My firm uses social media to communicate with customers., Social media helps to better market my business., The sector in which my firm competes needs ICT to be competitive., The performance of my firm solely depends on ICT use., The size of my firm requires I use ICT., The location of my business does not allow for ICT due to geographical location.						

The ANOVA test above which is $0.000 < \alpha$ at .05 shows that the results are statistically significant. The F-statistic value of ($F = 15,975$, $p < .000$) also shows that the results are significant. This indicates that the alternative hypothesis is accepted. This shows

that the relationship between business characteristics and ICT adoption is positive and significant; and that the actual adoption of ICT is determined by business characteristics of the SME owners.

5.6.6.2 Regression results for hypothesis 6

Hypothesis 6 states that there is a significant positive relationship between business characteristics and the adoption of ICT among SMEs. To test hypothesis 6, regression analysis was done and presented as follows.

Table 5. 45 Regression results on the relationship between business characteristics and adoption of ICT among SMEs

Model Summary ^b						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.668 ^a	.446	.418	.184	1.773	
a. Predictors: (Constant), BC Q16, BC Q17, BC Q18, BC Q19, BC Q20, BC Q21, BC Q22						
b. Dependent Variable: ICT Use						

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.828	.135		6.114	.000
	BC Q16	-.028	.042	-.086	-.663	.509
	BC Q17	.071	.055	.202	1.289	.200
	BC Q18	.135	.027	.487	5.069	.000
	BC Q19	-.034	.039	-.089	-.895	.372
	BC Q20	.128	.041	.348	3.110	.002
	BC Q21	.250	.054	-.937	-4.630	.000
	BC Q22	.188	.061	.687	3.093	.002

ICT adoption is $-0.028BC\ Q16+0,071BC\ Q17+0.135BC\ Q18-0.034\ BC\ Q19+0.128BC\ Q20+0.250BC\ Q21+0.188BC\ Q22+0.828$

R Square = .446

R is the percentage variation explained by the two variables. Hence, the results show that 44.6% of ICT adoption variance is explained by the independent variable business characteristics in the model. Considering the unstandardised coefficients, findings show that the independent variable's business characteristics is a significant predictor of the dependent variable's ICT adoption. Findings further show that there is a

significant positive relationship between business characteristics and the adoption of ICT among SMEs, which leads to the decision to accept the alternative hypothesis.

Conclusion on hypothesis 6

Table 5. 46 Conclusion on hypothesis 6

Tested hypotheses	Final decision
<i>H_{a6}: Business Characteristics positively affects the adoption of ICT by SMEs.</i>	Accepted

5.6.7 Relationship between Performance and Adoption of ICT

Hypothesis 7 H₇: Performance positively impacts the adoption of ICT by SMEs.

5.6.7.1 Performance and ICT adoption

Performance (P) can be said to affect ICTs indirectly. Communication improvement that comes about as a result of adopting ICT can result in better operational performance (Bayo-Moriones, Billon & Lera-Lopez, 2013). Therefore, we will look to establish whether performance has a significant relationship with ICT adoption through regression analysis.

Table 5. 47 Performance and ICT Adoption

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.532	3	1.844	90.383	.000 ^b
	Residual	2.917	143	0.020		
	Total	8.449	146			
a. Dependent Variable: Does your firm use ICT?						
b. Predictors: (Constant), ICT has improved the efficiency of my business and overall performance. Introducing ICT has increased my revenue and profits., ICT has improved communication and market interactivity with customers.						

The ANOVA test above which is $0.000 < \alpha$ at .05 shows that the results are statistically significant. The F-statistic value of ($F = 90,380$, $p < .000$) also shows that the results are significant. This indicates that the alternative hypothesis is accepted. This shows that the relationship between performance and ICT adoption is positive and significant;

and that the actual adoption of ICT is determined by performance of SME owners' businesses.

5.6.7.2 Regression results for hypothesis 7

Hypothesis 7 states that there is a significant positive relationship between performance of the business and the adoption of ICT among SMEs. To test hypothesis 7, regression analysis was done and presented as follows.

Table 5. 48 Regression results on the relationship between performance and adoption of ICT among SMEs

Model Summary ^b						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.809 ^a	.655	.647	.143	2.150	
a. Predictors: (Constant), P Q23, P Q24, P Q25						
b. Dependent Variable: ICT Use						

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.697	.036		19.464	.000
	P Q23	.107	.021	.359	5.187	.000
	P Q24	-.052	.022	-.168	-2.355	.020
	P Q25	.178	.026	.621	6.817	.000

ICT adoption is $0.107P_{Q23} - 0.052P_{Q24} + 0.178P_{Q25} + 0.697$

R Square = .655

R is the percentage variation explained by the two variables. Hence, the results show that 65.5% of ICT adoption variance is explained by the independent variable's performance in the model. Considering the unstandardised coefficients, findings show that the independent variable's performance is a significant predictor of the dependent variable's ICT adoption. Findings further show that there is a significant positive relationship between performance and the adoption of ICT among SMEs, which leads to the decision to accept the alternative hypothesis.

Conclusion on hypothesis 7

Table 5. 49 Conclusion on hypothesis 7

Tested hypotheses	Final decision
<i>H_{a7}: Performance positively affects the adoption of ICT by SMEs.</i>	Accepted

5.7 SUMMARY

This chapter presented findings of the study. These findings were presented in graphs, figures and tables. ANOVA results showed that Entrepreneurial Passion, Entrepreneurial Orientation, Perceived Usefulness, Perceived Ease of Use, Business Characteristics and Performance significantly predicted ICT adoption. On the other hand, factors such as Personal Factors were not significant predictors of ICT adoption. The next chapter summarises the whole research study.

CHAPTER SIX

6. INTRODUCTION, SUMMARY, RECOMMENDATIONS AND CONCLUSION

In this chapter the researcher summarises the study, reaches conclusions, and makes recommendations based on the results of the study to determine the determinants of Information Communications Technology adoption by SMEs. In addition, the limitations of the study and areas for future research are discussed. The chapter is presented based on the objectives of the study, as indicated below:

- Analyse whether ICT is adopted and used by SMEs
- Investigate factors that influence ICT adoption in the SME sector
- Assess the influence of ICT adoption on SME performance

The overriding purpose of this study was to investigate the determinants of ICT adoption by SMEs for improved performance. In addition, this study looked to investigate the use or the utilisation of ICT by SMEs in Capricorn District Municipality, as well as to analyse whether the determinants lead to business owners adopting ICT and if it affects the performance of small and medium enterprises.

6.1 SUMMARY OF FINDINGS

6.2.1 Relationship between Entrepreneurial Passion and Adoption of ICT by SMEs

Hypothesis 1: Entrepreneurial passion positively influences the adoption of ICT by SMEs.

Findings show that entrepreneurial passion (independent variable) was a significant predictor of the dependent variable's ICT adoption. The findings confirmed that there is a significant positive relationship between entrepreneurial passion and the adoption of ICT among SMEs, which leads to the decision to accept the alternative hypothesis.

6.2.2 Relationship between Entrepreneurial orientation and adoption of ICT by SMEs

Hypothesis 2: Entrepreneurial orientation positively influences the adoption of ICT by SMEs.

Findings show that entrepreneurial orientation (independent variable) was a significant predictor of the dependent variable's ICT adoption. The findings confirmed that there is a significant positive relationship between entrepreneurial orientation and the adoption of ICT among SMEs, which leads to the decision to accept the alternative hypothesis.

6.2.3 Relationship between Personal Factors and Adoption of ICT by SMEs

Hypothesis 3: Personal Factors positively impact the adoption of ICT by SMEs.

From the various tests, specifically the regression test, it can be seen that though personal factors might have some correlation with ICT adoption, the relationship is however insignificant. Thus, the findings show that personal factors are an insignificant predictor of the dependent variable which is ICT adoption. Therefore because of this insignificant relationship between personal factors and the adoption of ICT SMEs, this led to the decision to reject the alternative hypothesis.

6.2.4 Relationship between Perceived Usefulness and ICT adoption Among SMEs

Hypothesis 4: Perceived Usefulness positively impacts the adoption of ICT by SMEs.

The results of the regression analysis show that perceived usefulness has a positive correlation and significant relationship with most ICT owners adopting ICT. This is encouraging for not only technological growth within small businesses, but more, the adoption of ICT because of its perceived usefulness will allow small businesses to compete more in the economic atmosphere due to increased productivity and eventually increased revenue and growth. As such, there is a significant relationship

between perceived usefulness and ICT adoption, which led to the hypothesis being accepted.

6.2.5 Relationship between Perceived Ease of Use and the Adoption of ICT by SMEs

Hypothesis 5: Perceived Ease of Use positively impacts the adoption of ICT by SMEs.

The results of the regression analysis show that there is a significant and positive relationship between perceived ease of use and the adoption ICT. This is probably as a result of how most SME owners find ICT not too complicated and could be a result of their intellectual capacity or their age since the majority of SME owners who took part in the survey were relatively young. Be that as it may, the results showed a significant relationship between perceived ease of use and ICT adoption, which led to the hypothesis being accepted.

6.2.6 Relationship between Business Characteristics and ICT Adoption

Hypothesis 6: Business Characteristics positively impacts the adoption of ICT by SMEs.

Again, the results of the regression analysis show that there is a significant and positive relationship between Business Characteristics and ICT adoption. These characteristics included but not limited to size and sector of the business, ICT dependency of both business and owner, internet accessibility and social media use. Business characteristics showed how small business owners are willing to adopt to the ever-changing technological environment, hence giving birth to the significant relationship between business characteristics and ICT adoption, which led to the hypothesis being accepted.

6.2.7 Relationship between Performance and ICT Adoption

Hypothesis 7: The adoption of ICT positively impacts the performance of SMEs.

Performance of any business be it small or big is a key measurement of how well the business is doing and whether or not it is growing. Therefore, from the results of the tests in chapter four, we are able to see that most business owners believe that the adoption of ICT does lead to improved business performance. This is undoubtedly shown by the significant and positive relationship between business performance and ICT adoption. As such, the hypothesis was accepted.

6.3 LIMITATIONS

The study used a sample of SMEs from one district in one province which was Capricorn District Municipality in Limpopo. The generalisability of the study would have been better if the research had been extended to SMEs in other provinces of South Africa. Financial and time constraints on the part of the student did not make this possible. However, the population in Polokwane, which is the business hub of the district, was representative of the general business practices of the province. Therefore, the results are useful to all other cities.

6.4 RECOMMENDATIONS

SME owners need to take advantage of technological advancements such as ICT in the form of technological equipment or social media outlets, and use it to their benefit in order to promote their business, interact with suppliers and customers, thereby reducing the costs of advertising, saving, and having a competitive advantage over competitors. Thus, SME owners should invest in ICT to grow their businesses.

6.4.1 Recommendations Related to Characteristics of the Owner

Based on the outcomes of this study, it was found that all characteristics such as entrepreneurial passion, entrepreneurial orientation and personal factors do influence ICT adoption. Thus, SME owners should assess individual attributes such as the ones mentioned above in order to better run, manage or grow their businesses. These characteristics should be aligned with organisational objectives in order to realise the full potential of any adopted process, in this case ICT adoption. Based on existing studies, it was found that the benefits of adopting ICT greatly outweigh the costs given the era and business environment which SMEs operate in. Therefore, the researcher

recommends SMEs to fully adopt ICT to harness its benefits. Nevertheless, SMEs should also ensure that their businesses are compatible with ICT.

6.4.2 Recommendations Related to Perceived Usefulness

It was found that it is mainly technology readiness which is a key determinant of ICT adoption. Thus, this study recommends SME owners to avail themselves and make use of any technological equipment and knowledge in order to better their business. The more SME owners see the value in ICT, the more they are willing to adopt it in their businesses hence increasing productivity and ultimately revenue and profits. Therefore, business owners should invest in ICT as it is proving to be extremely useful in this fourth industrial revolution, as people seek products or services faster and more efficiently, hence the key is ICT.

6.4.3 Recommendations Related to Perceived Ease of Use

More and more people are being accustomed to technology, and its perceived benefits. Therefore, SME owners should also accustom themselves with different types of gadgets, technological equipment and various social media platforms so as to efficiently run their businesses. The more SME owners accustom themselves to ICT, the more they realise its perceived ease of use, and how it can turnover productivity and in turn sales, profitability and growth.

6.4.4 Recommendations Related to Business Characteristics

SME owners should understand the size and sector of their industry, the social media outlets that are available to them and have the relevant internet accessibility in order to make use of ICT in a way that will benefit their businesses and maximise output. A relevant example is social media, such as Facebook, WhatsApp, twitter and other social media tools which are being used to devastating effect in the marketing world in order to make customers aware of the different products or services that are available to them. Therefore, SME owners need to make use of such ICT as this will definitely boost their businesses as the results in chapter four showed.

6.4.4 Recommendations Related to Performance

ICT is fast dominating the commercial and economic world because of its vast applications, efficiency and cost implications. This is because ICT is able to triple the

output that is usually done by humans and is also easy to use and faster. In order for SMEs to grow and compete with larger firms or on the global market, they require ICT which will result in increased performance and ultimately greater output. There is no doubt that increased ICT usage or adoption will lead to better business performance. So, it is recommended that SMEs should invest in ICT in order to improve business performance.

6.4.5 Integrated Recommendations

The results indicate that since SMEs are directly affected by factors such as business characteristics, perceived usefulness, perceived ease of use, therefore SME owners need to understand each factor and how it can improve business performance using ICT.

SME owners who are currently using ICT should align it with their business objectives to use it fully to their advantage. Thus, there is a need for small businesses to attend workshops and seminars that can inform them on how to use ICT competitively and align it strategically to gain advantage over competitors. But also, through further studies more information can be gathered to inform small businesses on the advantages of using ICT such as marketing their businesses using social media as an advertising platform.

The government and policy makers should also empower SMEs through support structures such as workshops on how to successfully implement things like ICT to improve business performance and compete globally. In this way, these SMEs will be able to transition to larger firms that would contribute to growth of domestic product and job creation in a significant way. SMEs should employ enough competent workers to implement their objectives and achieve the desired goals. This will then increase the economic growth of a country.

6.5 AREAS FOR FUTURE RESEARCH

In the future, if resources allow, it would be beneficial to have a bigger sample size, and planning that allows the effective and logical analysis of data. Moreover, management of time is a key factor when conducting research, and allocation of that time so that too much time does not pass without catching up on that research. This study found although important in other contexts, personal factors such as education, background and age were not significant in the adoption of ICT in this study. Therefore, future studies can further investigate these factors for a clear conclusion. Future research can also investigate the effect of ICT on the growth of a particular sector or industry like finance or manufacturing in South Africa.

6.6 SUMMARY

The conclusion of the study is that most owners of SMEs understand the meaning of ICT, and to some extent, its benefits. However, for some especially in operating rural based settings, they do not quite understand how using ICT can be crucial in being competitive and gaining a greater market share amidst competitors. Some do not have internet access which is key to the use ICT. But for the majority who use it, it is important for them to attend workshops or seminars on how to use technology such as social media to grow and improve the performance of their businesses.

This study assessed determinants of ICT adoption. The study managed to achieve its objectives. It employed the quantitative research method and used questionnaires to collect data from SMEs. Data was analysed using descriptive statistics, ANOVA and regression analysis. Findings showed that business characteristics, perceived usefulness, perceived ease of use, entrepreneurial passion, entrepreneurial orientation, and performance all predicted ICT adoption. On the other hand, personal factors are not a significant predictor of ICT adoption. More importantly, the findings of the study managed to contribute towards closing the research gap identified during the literature review. Crucially, new empirical findings were generated which can positively contribute to the body of knowledge. The findings of this study are also expected to shed light on the SME sector regarding determinants of ICT. Understanding crucial factors to consider before adopting ICT can help them avoid common pitfalls in this sector. This study also made important recommendations to assist SMEs and redirect the way the government deploys its services towards the SME sector.

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Appendix A : Questionnaire English

Questionnaire on the adoption of ICT by SMEs

My name is MALVERN MICHELETTI EDWARDS. I am a Master of Commerce student at the University of Limpopo. I am conducting research titled “The Determinants of Information Communications Technology Adoption by Small and Medium Enterprises in the Capricorn District Municipality”. I have identified your business as one of the potential respondents, and I would like to invite you to take part in my research by completing this questionnaire. The findings of the research will assist to make recommendations that will help SMEs use ICT to improve their business performance. If this is fine with you, I would like to borrow a little bit of your time. Please answer each question as completely and as clearly as possible and put a cross or tick under the appropriate answer from the choices given or write your response in the spaces provided. Bear in mind that participation in this study is voluntary. The questionnaire will only be used for academic purposes.

Section A: Biography

Section A: Biographical information

1. What is your gender?

Male	
Female	

2. What is your age?

Below 20	21-30	31-40	41-50	Above 50
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3. What is your level of education?

Pre matric	Matric	Post matric
------------	--------	-------------

4. What is the legal status of your business?

Sole proprietor	Partnership	Close corporation	Company
-----------------	-------------	-------------------	---------

5. In which industry is your business?

Retail	service	manufacturing	Other

6. How many employees do you have?

No employees	Below 5	6-10	11-20	21-50	50 and above
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7. What is the age of your business?

Less than a year	1-5	6-10	11-15	15 and above
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Section B: ICT Adoption/Use

1. Does your firm use ICT?

Yes No

2. Does your firm benefit from ICT use?

Yes No

3. If yes, please state how (optional).

Section C: Determinants of ICT and performance (Likert scale)

Read the statements below about your business (firm) and indicate your level of agreement or disagreement. Please mark the right answer with an X or tick.

	Strongly agree	Agree	neutral	disagree	Strongly disagree
Perceived Ease of Use					
1. As a business owner, I believe ICT helps me to run my business smoothly					
2. ICT has helped me to better manage my business					
Perceived Usefulness					
3. ICT has helped increased the work rate of my employees					
4. Adopting ICT makes life simpler for me and my workers					
5. ICT is helping me to have a competitive advantage over my competitors and increase my revenue or profits					
6. ICT is helping my business to conclude transactions quicker					
Entrepreneurial Orientation					
7. ICT is riskier and more challenging to implement					
8. ICT helps me to be a better leader or manager					

9. Using ICT helps me and my business to be more creative and innovative					
10. ICT helps to gather information about competitors					
Entrepreneurial Passion					
11. As an owner or manager, I have a strong passion for ICT					
12. ICT motivates me to make my business perform better					
Personal Factors					
13. My background played a role in me adopting ICT					
14. At my age, I find ICT easier to use.					
15. My level of education helps in understanding ICT faster and its value					
Business Characteristics					
16. The size of my firm requires that I use ICT					
17. The sector in which my firm competes needs ICT to be competitive					
18. The performance of my firm solely depends on ICT use					

19. My firm uses Social Media to communicate with customers					
20. Social Media helps to better market my business					
21. The geographical location of my business does not allow for ICT					
22. ICT is not easily accessible to my business					
Performance					
23. Introducing ICT has increased my revenue and profits					
24. ICT has improved communication and market interactivity with customers					
25. ICT has improved the efficiency of my business and overall performance					

END OF QUESTIONNAIRE

THANK YOU FOR YOUR PARTICIPATION

Appendix B : Questionnaire Sepedi Dipotšišo tša kamogelo ya ICT by SMEs

Leina laka ke MALVERN MICHELETTI EDWARDS. Ke nna moithuti wa Maters of commerce in business management, unibesiting ya Limpopo. Ke dira dinyakišišo mabapi le “The Determinants of Information Communications Technology Adoption by Small and Medium Enterprises in the Capricorn District Municipality” mo dikgwebong tše dinyane le tša magareng. ke kgopela ge leka kgetha tema mo dinyakišišong ka go tlatša letlakalapotšišo le. Tseba gore ga se kgapeletšo go tlatša letlakalapotšišo le. Letlakalapotšišo le tla šomišwa mabapi le tša dithuto tša sekolo. Ke kgopela o arabe dipotšišo tše ka go kgetha karabo ya maleba

KAROLO YA A: Tsebo ka ga Wena

1. Naa bong bag ago ke eng?

Monna	
Mosadi	

2. Ona le mengwega eme kae?

Ka fase ga 20	21-30	31-40	41-50	Godimo ga 50
---------------	-------	-------	-------	--------------

3. Nna o rutegile go fihla kae?

Marematlou	Matric	Go feta marematlou
------------	--------	--------------------

4. Naa ka semolao kgwebo ya gago ke efe?

Sole proprietor	Partnership	Close corporation	Company
-----------------	-------------	-------------------	---------

5. Naa kgwebo ya gago eka karolong efe?

Go Rekisha	Go Servisa	Go Manufactura	Tše dingwe
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6. Naa lena le bašumi ba kae?

Agona bašumi	Ba ka dase ga 5	6-10	11-20	21-50	Ka godimo ga 50
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7. Naa kgwebo ya gago ena le mengwago ye mekae ele gona?

Ka fase ga ngwaga	1-5	6-10	11-15	Godimo ga 15
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Karolo B: Tšhomišo ya ICT

1. Naa kgwebo ya gago e šhomiša ICT?

Eeng Aowa

2. Naa kgwebo ya gago e humana se sengwe go ICT?

Eeng Aowa

3. Ge o dumela gore kgwebo ya gago gona lese ese humanago, hlaloša ba botlalo gore bjang (Ae gapeletšegi)

Karolo C: Naa bokgoni ba ICT o bo human abo le bjang goba o naganang ka ga bona (Likert scale)

Bala dipotšišo tšedi latelago ka kgwebo ya gago o dumele goba o ganane le dipotšišo tše di latelago. Please mark the right answer with an X or tick.

	Ke tloga ke sa dumelelaane le yona.	Ga ke dumelelani le yona	Magareng	Ke a dumela	Ke dumela kudu
Bonolo Ba Tšhomišo					
1. Bjale ka mong wa kgwebo ICT enthuša go sepedisha kgwebo yaka gabotse.					
2. ICT enthušitše go tokafatša bokgoni baka bago sepedisha kgwebo.					
Naa E Bohlokwabjang					
3. ICT e nthušitše go oketša bokgoni ba mošhomo bašumi baka.					
4. Go berekisha ICT go dira gore bophelo bobe bonolo go nna le bashumi baka.					
5. ICT e nthuša gobe ke be le bokgoni le menyetla gofeta bo rekgwebo ba bangwe					

le go tliša dipoelo tše di kaone.					
6. ICT e thuša kgwebo yaka gore e tswalele di transactions ka pela.					
Entrepreneurial Orientation 7. ICT e bothata go ka šhomišwa.					
8. ICT e nthuša goba menejara goba moetapele wo mokaone.					
9. Go šhomiša ICT gonthuša gore kgwebo yaka ebe le megopolo le dikakanyo tše di botse.					
10. ICT enthuša gore ke kgone go kopantšha tsebo ka dikgwebo tše dingwe.					
Entrepreneurial Passion 11. Bjale ka mongwa kgwebo goba menejara kena le kgahla ICT.					

12. ICT enthuša gore ke dire gore kgwebo yaka e shome gabotse.				
<p>Personal Factors</p> <p>13. Matšo aka a nthusitše gore ke tšee karolo ko ICT.</p>				
14. Mo mengwageng ye ke leng go yona ke humana ele gore ICT e bonolo goba e bothata go e šhomiša.				
15. Maemo aka a thuto a thuša gore ke kwišhišhe ICT kapela le mohola wa yona.				
<p>Business Characteristics</p> <p>16. Bogolo ba kgwebo yaka ke shumishe ICT.</p> <p>17. Lekgotla kgwebo yaka e tšeang diphadišhano ka gare le nyaka ke šhomiša ICT.</p>				
18. Bokgoni ba kgwebo yak abo nyaka tshomiso ya ICT.				

19. Kgwebo yaka e šhomiša social media go bolela le bareki.					
20. Social Media e thuša go tšine letsa goba go bapatša kgwebo yaka.					
21. Lefelo lewe kgwebo yaka eleng go lona, ale dumeleli tšhomišo ya ICT goya ka moo le leng ka gona.					
22. ICT ae humanege gabotse.					
Performance					
23. Go tšebiša goba go shomiša ICT go okeditše profit yaka.					
24. ICT e thusitse go tsweletša goba go bapatša kgwebo yaka gammogo le bareki baka.					
25. ICT e thušitše ka go tšheletša bohlokwa le bokgoni ba kgwebo yakaka botlalo.					

MAFELELO A NYAKIŠIŠO

KE LEBOGA TŠHOMIŠANO LE GO TŠEA KAROLO GA LENA

Appendix C : Consent Letter**CONSENT LETTER****Title of study**

The Determinants of Information Communications Technology Adoption by Small and Medium Enterprises in the Capricorn District Municipality

Principal investigator

Name: Malvern Micheletti Edwards

Department: Business Management

Phone: 0794458771

Email: malvernedwards@gmail.com

Purpose of the study

You are hereby requested to take part in a research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. Please request the researcher if there is anything that is not clear or if you need more information.

The purpose of the study is to investigate the determinants of ICT and how its adoption by SMEs will lead to improved business performance.

Outcome of the study

The study intends to fill the gap in the literature and will help businesses to know the impact of ICT determinants on improved business performance of SMEs. The study will further contribute to the on-going research on SMEs in South Africa and their importance. The result of this study will offer entrepreneurs with information they can use to increase the performance of their business.

Confidentiality, anonymity and voluntary participation

Your response to this study will be anonymous. By any means, please do not write any identifying information on the questionnaire. Your participation in this study is voluntary, and you can withdraw your participation in the study. Your identity will not be revealed because of your responses in the questionnaire.

Risk

There will be no physical, economic or social risks involved for participation in the study.

Consent

I have read and I understand the information provided and have had the opportunity to ask questions. I understand that my participation is voluntary, and I am free to withdraw my participation at any time without giving reasons. I voluntarily agree to take part in this study.

Participant's signature _____ Date _____

Investigator's signature _____ Date _____

Appendix D: Permission Letter

95 RETIEF STREET

MOKOPANE

0600

17 August 2020

THE MANAGER/OWNER

.....

RE: PERMISSION TO CONDUCT RESEARCH IN YOUR ORGANIATION

I am a Masters student with the University of Limpopo in the department of Business Management. I am undertaking a research on the topic "The Determinants of Information Communications Technology Adoption by Small and Medium Enterprises in the Capricorn District Municipality". You are kindly requested to assist in providing your sincere opinions or responses to the questions contained in this questionnaire. All information provided will be treated strictly as confidential and purely for academic purposes. I am looking forward to your participation.

Yours faithfully

EDWARDS MICHELETTI MALVERN

APPENDIX E : Similarity Index Report

Masters Turnitin

ORIGINALITY REPORT

13%	11%	7%	8%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to Universiti Teknologi MARA Student Paper	1%
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5	Sharmilee Sitharam, Muhammad Hoque. "Factors affecting the performance of small and medium enterprises in KwaZulu-Natal, South Africa", Problems and Perspectives in Management, 2017 Publication	<1%

APPENDIX F : Letter From English Editor



University of Limpopo
Department of Linguistics, Translation and Interpreting
School of Languages and Communication Studies
Private Bag x1106, Sovenga, 0727, South Africa
Tel: (015) 268 3707, Fax: (015) 268 2868, email:kubayij@yahoo.com

04 January 2021

Dear Sir/Madam

SUBJECT: EDITING OF DISSERTATION

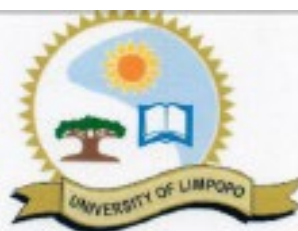
This is to certify that the dissertation entitled 'The determinants of information communications technology adoption by small and medium enterprises in the Capricorn District Municipality' by Malvern Micheletti Edwards (200905080) has been copy-edited, and that unless further tampered with, I am content with the quality of the dissertation in terms of its adherence to editorial principles of consistency, cohesion, clarity of thought and precision.

Kind regards



Prof. SJ Kubayi (DLitt et Phil - Unisa)
Associate Professor
SATI Membership No. 1002608

APPENDIX G : Faculty Approval



University of Limpopo
 Faculty of Management and Law
OFFICE OF THE EXECUTIVE DEAN
 Private Bag X1106, Sovenga, 0727, South Africa
 Tel: (015) 268 2558, Fax: (015) 268 2873, Email: Omphemetse.sibanda@ul.ac.za

24 July 2020

M.M Edwards (200905080) MCOM
SCHOOL OF ECONOMICS AND MANAGEMENT
Master of Commerce in Business Management

Dear Mr MM Edwards,

FACULTY APPROVAL OF PROPOSAL


I have pleasure in informing you that your Masters proposal served at the Faculty Higher Degrees Committee meeting on 21 July 2020 and your title was approved in principle subject to translation of questionnaire as follows:

"The Determinants Of Information Communications Technology Adoption By Small And Medium Enterprises In The Capricorn District Municipality"

Note the following: The study

Ethical Clearance	Tick One
Permission Letter	
Requires no ethical clearance Proceed with the study	
Requires ethical clearance (Human) (TREC) (apply online) Proceed with the study only after receipt of ethical clearance certificate	✓
Requires ethical clearance (Animal) (AREC) Proceed with the study only after receipt of ethical clearance certificate	

Yours faithfully,

 | 08/08/20

Prof MP Sebola

Chairperson: Faculty Higher Degrees Committee

CC: Prof O Fatoki, Supervisor and Acting Head of Department and Prof MP Sebola, Acting Director,
 School of Economics and Management

APPENDIX H : Ethical Clearance Certificate



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 Department of Research Administration and Development
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TURFLOOP RESEARCH ETHICS COMMITTEE

ETHICS CLEARANCE CERTIFICATE

MEETING: 21 October 2020

PROJECT NUMBER: TREC/321/2020: PG

PROJECT:

Title:	The Determinants of Information Communications Technology Adoption by Small and Medium Enterprises in The Capricorn District Municipality
Researcher:	MM Edwards
Supervisor:	Prof O Fatoki
Co-Supervisor/s:	N/A
School:	Economics and Management
Degree:	Master of Commerce in Business Administration

PROF P MASOKO

CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: REC-0310111-031

Note:

- i) This Ethics Clearance Certificate will be valid for one (1) year, as from the abovementioned date. Application for annual renewal (or annual review) need to be received by TREC one month before lapse of this period.
- ii) Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee, together with the Application for Amendment form.
- iii) PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.