

**DURBAN UNIVERSITY OF TECHNOLOGY**

**THE INFLUENCE OF MODERN TECHNOLOGY ON EMERGING  
ENTREPRENEURS IN RURAL KWAZULU NATAL (KZN) PROVINCE**

**FIONA LANGRY**

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**THE INFLUENCE OF MODERN TECHNOLOGY ON EMERGING  
ENTREPRENEURS IN RURAL KWAZULU NATAL (KZN) PROVINCE**

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**FIONA LANGRY**

**OCTOBER 2023**

**APPROVED FOR EXAMINATION *OR* FINAL SUBMISSION**

Supervisor: Professor Ravinder Rena

(Signature)

Date: 09 October 2023

## DECLARATION

I, Fiona Langry, do hereby declare that this thesis is the result of my investigation and research, except where otherwise stated and where a citation is provided it is carried out under the supervision and guidance of Prof Ravinder Rena. I further declare that this study has not been submitted in part or full for any degree to any other University.

09 October 2023

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F Langry

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Date

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## **ACRONYMS AND ABBREVIATIONS**

AI	Artificial Intelligence
AR	Augmented Reality
CAFMED	Campaign for Female Education
CRM	Customer Relation Management
DESIRA	Digitisation: Economic and Social Impacts in Rural Areas
DoC	The Department of Communications
DSBD	Department of Small Business Development
GDP	Gross Domestic Product
GEM	Global Entrepreneurship Monitor
ICT	Information and Communications Technology
IoT	Internet of Things
KMO	Kaiser-Meyer-Olkin
KZN	KwaZulu-Natal
OECD	Organisation for Economic Co-operation and Development
SEDA	Small Enterprise Development Agency
SEM	Structural Equation Model
SMMEs	Small, Micro and Medium Entrepreneurs
SPSS	Statistical Package for Social Sciences
Stats SA	Statistics South Africa
TREP	Township and Rural Entrepreneurship Programme
UNDP	United Nations Development Programme
VR	Virtual Reality

## **ABSTRACT**

Information and communication technology (ICT) gives emerging entrepreneurs a greater opportunity to expand their companies, but many companies are unable to grow into engines of rural economic growth and job creation due to the difficulties associated with adopting and using ICTs. The purpose of this research is to describe the findings of an empirical study on the application of modern technology by emerging entrepreneurs in rural KwaZulu-Natal and its implications, both theoretical and practical, for the expansion of rural small and medium-sized enterprises (SMMEs). Many decision-makers are concerned about the concept of rural industrialization and the ways in which it might boost the economic growth of rural small, micro and medium-sized enterprises (SMMEs).

The study also seeks to gain an understanding, knowledge, and awareness of how the application of modern technology could help in the development of robust rural industrialization, which would have a positive change in the economic climate of rural SMMEs. A quantitative analysis was undertaken for this study, and empirical data was collected from 384 participants in this study, all of whom were company managers or owners of small, micro and medium-sized enterprises (SMMEs) located in the KwaZulu-Natal Province. The statistical application, Statistical Package for the Social Sciences (SPSS) version 28.0 was used to conduct the analysis once the data had been inputted into the computer in accordance with the question codes that were pre-determined.

The findings of the study suggest that rural entrepreneurs encounter a diverse range of challenges that have a substantial impact on their operational effectiveness. The existence of these challenges presents significant barriers, hindering their ability to engage in innovative and creative endeavours, hence limiting their potential to make substantial contributions to the advancement of sustainable development. The findings identified that access to finance, lack of training and skilled employees and lack of ICT infrastructure were the primary catalysts that influenced modern technology adoption by emerging entrepreneurs in rural KwaZulu-Natal Province. As a result of this research, this paradigm will be enlightened, and new knowledge perspectives will be

disclosed. It is conceivable for policymakers to encourage emerging entrepreneurs in rural areas to use ICT in their businesses, which will, in turn, inspire other entrepreneurs to look up to these adopters and follow them, ultimately contributing to an increase in the usage of ICT in rural communities.

**Keywords:** *Rural entrepreneurship, Modern technology, economic growth, information and communications technology,*

## **CHAPTER ONE: INTRODUCTION AND BACKGROUND**

### **1.1 INTRODUCTION**

The Fourth Industrial Revolution (4<sup>th</sup> IR) can be classified as a current and developing environment in which a confluence of disruptive technologies such as Internet of Things (IoT), Artificial Intelligence (AI), Virtual Reality (VR), and Augmented Reality (AR) are totally transforming the way that we live and work (Xu, David and Kim, 2018:92). These modern technologies have been in the spotlight for several years, but predominantly operating in developed economies and cities around the globe.

Entrepreneurship has been widely acclaimed as driving wealth creation and adding value whilst also stimulating the economies of many regions. “It drives innovation, creates jobs, develops human potential and satisfies new customer demands” (Jaén, Moriano and Liñán, 2013:16). To this effect, one can surmise that entrepreneurship is a critical factor in determining and promoting national development strategies which aid in connecting the region to a global economy. Rural entrepreneurship has not gained the same level of expertise and traction due to the many challenges faced with operating in these areas (Rena, 2009:2). Lack of resources such as skilled labour, Information Technology infrastructure and proper housing developments and transportation issues all contribute to the myriad of challenges faced by entrepreneurs wanting to promote economic development in the advent of the fourth industrial revolution.

The digital landscape in South Africa has seen rapid transformations due to the emergence of advanced technologies such as mobile broadband (3G, 4G, and soon 5G), smartphones, and high-speed fibre access. Small, micro, and medium-sized enterprises (SMMEs) now have the chance to innovate and become more competitive as a direct result of these technological developments; however, to take advantage of this opportunity, SMMEs must first make the decision to implement these technologies into their daily business operations. (Fourie, 2019:1). The internet is the most widely used medium to connect businesses and individuals in the current digital landscape, however, rural localities still lack high speed internet coverage (Salemink, Strijker and

Bosworth, 2017:360). This poses a risk and subsequent disadvantage to an entrepreneur who is operating in the rural domain. According to Mpofu and Watkins-Mathys (2011:2), South African business organizations operating in underdeveloped and distant locations face ongoing technological challenges, which make it challenging for them to compete and grow in a market that is heavily reliant on ICT developments. The governments of emerging nations have realized that without the inclusion of rural areas, no development will be worthwhile (Nwankwo & Okeke, 2017:1). Due to these factors, rural entrepreneurship and rural innovation have grown in prominence (Rena, 2009:3).

The proliferation of technology in the modern world and the fact that people who live in rural regions can acquire access to this technology has led to the creation of new opportunities for people living in rural areas to engage in activities related to entrepreneurship (Savira and Fahmi, 2020:2; Ahmad, Hassan and Rosliah, 2021:109). Rural business owners can now use e-commerce platforms to access new markets, use financial technologies, improve communication between suppliers and customers, and use educational service applications to learn new skills (Abeyasinghe and Malik, 2021:2). All of these enable rural businesses to operate on an equal footing with urban businesses, etc. at minimal expense, risk, and experimentation. Although it has the potential, the phenomena of rural entrepreneurship have not completely made use of the opportunities offered by modern technologies.

## **1.2 BACKGROUND TO THE STUDY**

The ever-changing global environment has raised questions surrounding the ability of the traditional and small- scale businesses in rural KwaZulu-Natal Province to adapt and prosper in the advent of the fourth industrial revolution. Rural entrepreneurship has grown steadily throughout the last few years and these business activities could, therefore, be classified as the emergence of rural industrialization (Rena, 2009:3; Tutuba and Tundui, 2022:10; Zang *et al.*, 2020:2; Sathiya, 2019:8). Newbery *et al.* (2017:1) attest that rural entrepreneurship is an essential component in the process of fostering innovation and promoting the growth of communities.

Rural entrepreneurs are needed to boost the economic development of the country, however, they face many challenges (Rena, 2009:3), one of which can be attributed to the advent of the fourth industrial revolution which has given rise to what is known as the “digital divide” (Rijswijk *et.al.*, 2021:1). The underlying cause of this occurrence can be ascribed to a multitude of variables, among them is the dearth of telecommunication infrastructure and inadequate broadband connectivity in rural regions (Bowen and Morris 2019: 76).

Deller *et al.* (2019: 30) further surmise that rural entrepreneurship is impacted by the limited access to financial capital which is compounded by the paucity of funds from the community and the limited financial support from government in these sectors of the economy. This statement is supported by Sharma *et al.* (2013:1037) who are of the opinion that due to a lack of information regarding financial matters and the absence of tangible security to secure a loan, a loan cannot be obtained; this is an impediment to developing rural entrepreneurship. According to a review of the existing body of literature (Bowen, 2021:126; Ataei, Ghadermarzi, Karimi and Norouzi, 2020:369; Yogendran and Eranda, 2020:126; Lekhanya 2018:39), rural entrepreneurs are also confronted with several obstacles, some of which include management incompetence, a lack of marketing abilities, and an inadequate amount of entrepreneurial expertise.

The majority of newly established small businesses never progress past the survival stage in South Africa (Chimucheka and Mandipaka, 2014:1). According to the findings of a study that was conducted in the city of Buffalo by Chimucheka and Rungani (2014:1–17), barriers to financing for South African small, micro and medium enterprises (SMMEs) include a lack of education, weak business plans, inadequate collateral security, and a lack of a financial deposit are some of the factors that contribute to this. The Small Enterprises Development Agency (SEDA) (2016:7-10) mirrored this sentiment when it stated that the absence of sufficient access to financial resources and market opportunities, insufficient infrastructure, labour regulations, and criminal activities, skills gap, and an ineffective bureaucracy all pose problems for South African SMMEs.

The South African economic sector is diversely structured, and when the informal sector is considered, it is estimated that there are 3.3 million informal and microbusinesses (Department of Small Business Development {DSBD}, 2020:6). According to SEDA (2020:17), the SMME sector accounts for 45% of employment, 9.3% of which is in the unorganized sector, 3.9 million individuals are employed in microbusinesses through the informal market, 1.1 million people work in the unorganized sector, and a further 1.6 million people are self-employed. According to this, there are roughly 6.7 million individuals employed in the micro and informal sectors (SEDA, 2020:17).

Several pieces of law, such as the Broadband Policy, the Electronic Transactions Act of 2005, and the Electronic Communications Act of 2005, serve as the foundation for South Africa's Information and Communications Technology (ICT) policy framework (Jere and Aruleba, 2022:4). The Department of Communications (DoC) oversees creating these policies, while the Independent Communications Authority of South Africa (ICASA) controls their implementation. Numerous policies have been implemented with the aim of addressing the challenges associated with the affordability, accessibility, and availability of information and communication technology (ICT) services inside the country.

During the initial quarter of 2021, South Africa exhibited an official unemployment rate of 32.6%, positioning it among the nations globally characterized by a substantial proportion of individuals without gainful employment. South Africa is confronted with persistent challenges pertaining to elevated poverty rates and socio-economic disparities. South Africa also continues to struggle with high levels of poverty and socio-economic inequality. On the other hand, the difficulties may be lessened if an efficient integration of information and communications technology services is carried out over the rest of the nation.

### **1.3 PROBLEM STATEMENT**

Although, South Africa has a high rate of ICT adoption, as of 2018, the percentage of rural households with internet access countrywide was merely 1.7%, while in the

specific regions of Limpopo and North-West, the figures were even lower at 0.6% and 0.8%, respectively. In contrast, urban areas and cities had a far higher rate of Internet access, with at least 17.3% of homes having connectivity (Aruleba and Jere, 2022:2). Rural communities characterized by a significant black population possess telephone infrastructure, albeit inadequately provided and maintained, which is, in contrast to neighboring urban districts that are governed by elites and have comparable infrastructure that is up to date and maintained (Mashinini, 2008:128; Salemink, Strijker and Bosworth, 2017:365).

Moreover, there are currently no telecommunication networks in certain rural areas. According to the findings of Mamba and Isabirye (2015:136), a significant proportion of information and communication technology (ICT) efforts implemented in rural townships often encounter challenges leading to failure. These challenges primarily stem from inadequate management practices, poorly formulated rules, insufficient user engagement, and a limited comprehension of ICT. As a direct consequence of this, a geographic digital divide is emerging between places that are adequately serviced, which are mostly urban, and areas that are not adequately served, which are primarily rural (Salemink *et al.*, 2017:365).

The majority of South Africans are financially unable to purchase communications services, with 36 percent citing the high cost of smart devices as the primary obstacle to their use of the internet, 15 percent citing the high cost of the Internet, and 47 percent attributing their limited use to the high cost of data (Gillwald, Mthobi and Rademan, 2018:7). People are unable to participate in the economic and social networks that permeate contemporary cultures without connectivity, whether they are consumers, employees, or business owners (Gillwald *et al.*, 2018:7)

Small enterprises in rural areas have not been able to make a substantial contribution since they do not enhance either their production capacity or their prospective workforce, and this has prevented them from being able to meet the needs of their communities (Ataei *et al.*, 2020:368; Yogendran and Eranda, 2021:127; Bowen, 2020:126). Particularly in the rural and underdeveloped areas of the KwaZulu-Natal Province, it seems that the rural entrepreneur is faced with a multitude of factors that

affect the ability of growth, such as low levels of education, high costs associated with ICT, lack of digital skills and socio-economic issues associated with cultural norms (Arubela and Jere, 2022:3; Zondi and Qwabe, 2022:9; Salemink *et al.*, 2017: 361).

#### **1.4 RESEARCH QUESTIONS**

- How is modern technology used by the emerging entrepreneur in the rural KwaZulu-Natal Province?
- What are the implications of using modern technology among the emerging entrepreneurs in the rural KwaZulu-Natal Province?
- What are the factors contributing to the use of modern technology by the emerging entrepreneurs in the rural KwaZulu-Natal Province?
- What are the characteristics of the emerging entrepreneur when using modern technology in the rural KwaZulu-Natal Province? and
- What impact does digitalisation have on the emerging rural entrepreneur in the rural KwaZulu-Natal Province?
- What strategies can be implemented to ensure that modern technology is being used by the emerging entrepreneur?

#### **1.5 RESEARCH AIM AND OBJECTIVES**

The aim of the study was to investigate the influence of using modern technology among emerging entrepreneurs in the rural KwaZulu-Natal Province.

To achieve the aim of this study, the following primary objectives are pursued:

- To examine the use of modern technology among emerging entrepreneurs in the rural KwaZulu-Natal Province;
- To assess the implications of modern technology on emerging entrepreneurs in the rural KwaZulu-Natal Province;
- To evaluate the factors contributing to the use of modern technology among emerging entrepreneurs in the rural KwaZulu-Natal Province;

- To ascertain the characteristics such as attitudes and opinions of the emerging entrepreneur towards using modern technology in the rural KwaZulu-Natal Province; and
- To analyse the awareness and knowledge about the advantages of modern technology being used as a business tool among emerging rural entrepreneurs in the rural KwaZulu-Natal Province.
- To formulate recommendations on what steps should be taken to improve the business strategies for a rural entrepreneur who would use modern technology.

## **1.6 RESEARCH HYPOTHESIS**

The following variables have each been investigated to analyse the relationship between their respective relevant constructions and the influence that modern technology has had on emerging rural entrepreneurs in the rural KwaZulu-Natal Province. This was done to determine whether or not there is a correlation between the two. Both the null hypothesis (Ho) and the alternative hypothesis (Ha) will be discussed in this section.

Ho1: There is no relationship between using modern technology and broadband availability to grow the business by emerging entrepreneurs in the rural KwaZulu-Natal Province.

Ha1: There is a relationship between using modern technology and broadband availability to grow the business by emerging entrepreneurs in the rural KwaZulu-Natal Province.

Ho2: There is no relationship between innovation and technical expertise of emerging entrepreneurs in the rural KwaZulu-Natal Province.

Ha2: There is a relationship between innovation and technical expertise of emerging entrepreneurs in the rural KwaZulu-Natal Province.

Ho3: There is no relationship between external factors and the use of modern technology among emerging entrepreneurs in the rural KwaZulu-Natal Province.

Ha3: There is a relationship between external factors and the use of modern technology among emerging entrepreneurs in rural KwaZulu-Natal Province.

Ho4: There is no relationship between entrepreneurial characteristics and the use of modern technology to grow the business among emerging entrepreneurs in the rural KwaZulu-Natal Province.

Ha4: There is a relationship between entrepreneurial characteristics and the use of modern technology to grow the business among emerging entrepreneurs in the rural KwaZulu-Natal Province.

Ho5: There is no relationship between digitisation and the impact it has on promoting rural entrepreneurship in the rural KwaZulu-Natal Province.

Ha5: There is a relationship between digitisation and the impact it has on promoting rural entrepreneurship in the rural KwaZulu-Natal Province.

## **1.7 SIGNIFICANCE OF THE STUDY**

The significance of this study is to understand how modern technology is being used by emerging rural entrepreneurs in the KwaZulu-Natal Province and the impact it has on expanding the marketing capabilities for the entrepreneur. This study has important theoretical and practical inferences for both the entrepreneur and consumer towards gaining new knowledge and an understanding of how digitalisation can increase and disseminate knowledge within this sector.

This study also aims to add to the corpus of knowledge already in existence regarding the effectiveness of using modern technology and its implications on emerging entrepreneurs in the rural KwaZulu-Natal Province. The research findings could be used as a point of reference when determining economic policy guidelines in the rural sector. The findings of this research will not only contribute to the existing corpus of

knowledge regarding how modern technology influences businesses in rural areas, but they will also shed light on the elements that contribute to the efficiency with which such technology is utilized.

In addition to having intellectual and instructional potential, this study may also influence the actual economic well-being of small, micro and medium-sized enterprise (SMME) owners and managers in rural areas of many different countries. Small business owners have the opportunity to seek answers to their inquiries in this research, which will enhance their comprehension of many matters. This improved understanding will facilitate their ability to effectively maintain and expand their enterprises, while simultaneously fostering the economic and social welfare of their respective nations.

The research approach used to carry out in this study is described in the following section. It will include the study's population, samples, and the research strategy.

## **1.8 OVERVIEW OF THE RESEARCH METHODOLOGY AND DESIGN**

### **1.8.1 Research Design**

The research design is the overarching strategy that is used to connect the conceptual research issues with the appropriate empirical research. This technique is utilized to draw conclusions about the relationships between the two types of study. In the study design, the many kinds of data that need to be obtained, the processes that will be followed to acquire and analyse this data, and the strategy that will be applied to provide an answer to the research questions are all outlined in detail. According to Creswell (2014: 12); Leavy (2017: 8); and Sileyew (2019:28), the primary objective of a research design is to establish a systematic framework for addressing the research questions. It serves as a strategic roadmap that directs the researcher's actions, specifically in terms of selecting and implementing the appropriate data collection and analysis methods.

Quantitative research is identified as a type of research that is used to explain phenomena or behaviour by collecting primary data and analysing the data by mathematically based methods and by linking the research questions to the data (Mehrad and Zangeneh, 2019:2). In this study, a quantitative research approach was employed, utilizing a closed-ended questionnaire as the primary data collection instrument. It was expected that the closed-ended questionnaire would be simpler to finish, which would result in a greater response rate. To ascertain the appropriate sample size for the research study, a non-probability sampling technique was deemed to be the most pragmatic choice.

### **1.8.2 Target Population**

Target population can also be referred to as the target audience and encompasses all individuals who share a collective defining set of characteristics that distinguishes them from the general population (Rahi, 2017:3). The study's target group comprised entrepreneurs who were engaged in business activities within the rural areas of KwaZulu-Natal (KZN). Questionnaires were disseminated among the members of this cohort. The major metropolitan municipality which is also the economic hub of KwaZulu-Natal is eThekweni, while the other district areas are predominantly rural and is comprised of Amajuba, Harry Gwala, iLembe, King Cetshwayo, Ugu, uMgungundlovu, uMkhanyakude, uMzinyathi, uThukela and Zululand.

The Small Enterprise Development Agency (Seda) declares that the number of SMMEs declined by 11% to 2.36 million for the fiscal year 2020Q3, of which 90% of job losses occurred in the SMMEs sector. SEDA declares that there were 21.8% of formal and 74.4% of informal SMME owners for 2020Q3 for the KwaZulu-Natal Province. The study's target audience consisted of 384 small, micro, and medium enterprise (SMME) business owners operating in certain rural locations within the KwaZulu-Natal Province.

### 1.8.3 Sampling Size

In accordance with the sampling strategy, a section of the population is selected for the investigational domain, and the members of this section of the population serve as a sample population that is typical of the complete population. According to Saunders *et al.* (2015:272), the collection of comprehensive data from the entire population is deemed virtually unattainable due to several constraints such as limitations in time, resources, and access restrictions that inevitably affect the sampling process. According to the KZN Provincial Planning Commission, 51% of KwaZulu-Natal is classified as rural, whilst 743 informal settlements were identified across the entire Province. According to Sekaran and Bougie (2016: 269), it has been determined that for most research projects, an adequate sample size falls within the range of larger than 30 and less than 500. Hence, for the present study, the sample size consisted of 384 respondents selected from selected rural areas in the KwaZulu-Natal Province.

In terms of identifying prospective participants for the quantitative study, the researcher ensured that proper representation was attained by identifying SMME businesses on the SEDA database, with specific focus applied to businesses in the KwaZulu-Natal Ethekwini rural region. The participants of the study consisted of 384 owners/managers of small, medium, and micro enterprises (SMMEs) operating in the designated areas of the Ethekwini region (124 Umlazi), (100 KwaMashu), (80 Ndwede), (80 Verulam). The survey participants were chosen through a random selection process.

The identification of the small, medium, and micro enterprise (SMME) sector was carried out by examining a population of around 500 SMMEs that are actively involved in business activities within the Umlazi area and its surrounding vicinity. Given that Umlazi is ranked as the fourth largest township in South Africa, the sample size employed in this study can be considered representative of the prevailing number of firms operating within that region. The other three regions are similar in terms of the demographic profile of the KwaZulu-Natal Province and fulfil the purpose and goals of the study, so the sample size was adequate for these regions.

It must be noted that there is a dearth of statistics relating to the number of SMMEs in the eThekweni region, and according to Kothari (2004:60-63), the appropriate margin of error of 5% is adequate in terms of the sample population that is greater than 1 000 and less than 2 500. The sample size was also not limited to a specific industry, or any specific size of the SMME in terms of micro, small or medium enterprise. The rationale for this selection was due to the limited resources available to the researcher, as well as this study being an exploratory research.

#### **1.8.4 Sampling Method**

According to Saunders *et al.* (2015:272), there are fundamentally two distinct kinds of sampling, which are referred to as probability sampling and non-probability sampling. Both of these types of sampling are used to collect data. Probability sampling is a sampling technique that is distinguished by the deliberate inclusion of each individual in the population, ensuring that each has a non-zero likelihood of being chosen for the sample (Saunders *et al.*, 2015:272). Non-probability sampling is a form of sampling in which units of the sample are selected on the basis of human judgment or convenience rather than on the basis of probability (Saunders *et al.*, 2015:272). This is in contrast to probability sampling, which selects units of the sample based on the likelihood of their occurrence. In this research, the sampling techniques utilized quota sampling as a non-probability sampling technique. Quota sampling is considered an economical strategy in terms of cost and time. The sample was drawn from the SEDA database of SMME owners/managers in the rural areas of the KwaZulu-Natal Province.

#### **1.8.5 Measuring Instrument**

The inherent characteristics of this study need the utilization of a primary data collection approach to obtain empirical data that can effectively address the research inquiries presented. Sharma and Kumar (2022:1) posit that research integrity requires

precise data collection, regardless of how data are defined, either through quantitative or qualitative methods or a mixed method approach. Numerous studies collect data using instruments like questionnaires, interviews, and observation. The questionnaire was employed as the principal tool for data collection to achieve the objectives of this research endeavor. For the purpose of this investigation, a 5-point Likert scale was utilized to rate the respondents' assumptions and opinions regarding the majority of the questionnaire. Section B of the questionnaire was a structured section that comprised close-ended questions which was used to cover any information that could possibly be left out from the Likert scale questionnaire.

## **1.9 DATA COLLECTION**

The primary data collection tool employed in this study was a closed-ended questionnaire, utilizing a non-probability convenience sample technique. In terms of identifying prospective participants for the quantitative study, the researcher ensured that proper representation was attained by indentifying SMME businesses on the SEDA database, with specific focus applied to businesses in the rural regions of the KwaZulu-Natal Province.

The primary data collection was conducted through the utilization of a questionnaire that was specifically created to capture and evaluate the most relevant parameters relating to the influence of modern technology on emerging entrepreneurs in the rural areas of the KwaZulu-Natal Province. The questionnaire was designed in both English and iSizulu and transferred back into the respective language to ensure accuracy. iSizulu was chosen as it is the predominant language in KZN aside from English. The questionnaire was distributed and collected with the aid of a research assistant who d received all necessary training.

Establishing inclusion and exclusion criteria is an integral practice when implementing high quality research practices. The following criteria was used for this study's selection of participants for exclusion or inclusion:

### **1.9.1 Inclusion Criteria**

This research was only conducted with companies that were registered with the Small Enterprise Development Agency (SEDA) and have their primary operations in the townships and rural regions of the KwaZulu-Natal Province.

### **1.9.2 Exclusion Criteria**

This study excluded those businesses that were not registered with SEDA as this non-compliance of adhering to business regulations would not be a true representation of the data when comparing registered and non-registered entities.

In recruiting the participants for the study, the researcher followed the method below:

- Contacted the SEDA offices and requested a list of the number of SMME businesses in KwaZulu-Natal for the selected municipalities outlined;
- E-mailed the business owners or managers, requesting permission to conduct the study;
- The companies that did not have e-mail access were contacted via telephone, requesting permission to conduct the study;
- Removed businesses from the list where permission was not granted;
- Once permission was granted to conduct the study, -emailed the questionnaire to those respondents; and
- For businesses without access to e-mail, an in-person delivery was made to drop of the questionnaire.

On average, the completion time for each questionnaire ranged from 15 to 20 minutes. The researcher allotted a period of 14 days for the respondents to complete the questionnaires and submit their responses through e-mail for the respondents filling in the electronic version. For those respondents completing the hard copy version, the researcher did an in-person visit and collected the questionnaire.

## **1.10 DATA ANALYSIS**

Quantitative data analysis is concerned with the investigation of phenomena and behaviours and is determined by obtaining primary data via surveys, polls and questionnaires, and is displayed in a numerical or statistical interpretation (Ngulube, 2015:1). Inferential and descriptive statistical analysis of the data was undertaken using the SPSS (version 28.0) computer package. This package was used due to its dependability. A qualified statistician was responsible for carrying out the statistical analysis of the data collected for this study.

## **1.11 PILOT TESTING**

A preliminary investigation on a smaller scale and with fewer participants is known as a pilot study. Its purpose is to ascertain whether conducting the full-scale study will be feasible. The pilot study is a preliminary investigation that aims to determine the potential for conducting a larger-scale study. Additionally, it seeks to evaluate the reliability and validity of the interview questions used, specifically assessing whether the questions are suitably designed in accordance with the guidelines proposed by Van Teijlingen & Hundley (2002:373).

For this study, the researcher conducted a pilot study that encompassed 25 randomly selected entrepreneurs/business owners in the rural KwaZulu-Natal Province. The aforementioned individuals were omitted from the primary investigation. The primary objective of the pilot study was to evaluate the validity and reliability of the survey questions, ensuring that they were suitably designed and constructed. Subsequently, this allowed for the refinement of the research methodologies and questionnaire.

## **1.12 VALIDITY AND RELIABILITY**

Both validity and reliability are vital aspects for all research work undertaken and equates to the importance of ensuring that the data integrity is accurately represented

to the research field (Grossoehme, 2014:254). Leung (2015:324) proclaims that validity is an essential component of determining whether the measuring instrument is adequate and appropriate for the agreed objectives of the research being undertaken.

In order to establish the credibility of the data collection instrument, a content validity approach was employed, involving the input of acknowledged experts in the field to assess the tool. Additionally, the pilot research was conducted to enhance the instrument's validity by addressing any potential issues at an early stage.

In order to establish the reliability of the measuring instrument, a pilot questionnaire was delivered as a pre-test to assess the clarity and comprehensibility of the questions. This was done to guarantee that respondents encountered no difficulties when providing their answers. To ensure reliability of the measuring instrument a pilot questionnaire was administered to pre- test the questions so that the respondents did not have a problem when answering the questions. A preliminary analysis was conducted on the pilot project to ascertain whether the data acquired would effectively address the research issues that were posed.

### **1.13 ANONYMITY AND CONFIDENTIALITY**

In order to ensure the integrity of this research, all participants were provided with a guarantee of anonymity. Furthermore, the questionnaire utilized in this study did not necessitate subjects to divulge their personal identities. The involvement in this research project was completely voluntary, granting individuals the freedom to quit their participation at any given time without the need for providing a rationale. Respondents remained anonymous, and the researcher used pseudonyms and codes to identify respondents and participants. After a duration of five years, the researcher undertakes to destroy all completed questionnaires by consenting participants.

#### **1.14 ETHICAL CONSIDERATION**

According to Vanclay, Baines, and Taylor (2013:243), the ethical issues that need to be applied by a researcher should be emphasized throughout the process of data gathering. It is essential for a researcher to always respect the ethos of the scientific record while also adhering to the ethical norms of trustworthiness and integrity. For this study, all participants were advised that their consent was imperative, and no harm would befall them during or after the conclusion of the study. The researcher further aimed to maintain absolute confidentiality and anonymity of all participants.

Prior to the undertaking of this study, ethical clearance was obtained from the Ethics Committee of the university upon which the researcher provided assurance to the participants that any relevant information acquired will be exclusively utilized for the purpose of this study. All confidential data in the form of hard copies will be safely stored in a locked filing cabinet at DUT. All electronic data will be encrypted, and password protected and uploaded to the Cloud with multi-factor authentication for safekeeping. After a period of five years, the data in the cloud will be permanently deleted, while the hard copies will be shredded using an office shredder at the DUT premises.

The confidential data kept for the duration of these five years will only be accessible to the researcher for the purposes of confidentiality and auditing.

#### **1.15 STUDY LIMITATIONS**

The research was carried out in the KwaZulu-Natal Province, and the participants consisted of 384 business owners/managers in specific rural areas which comprised of the following Ethekewini regions (Umlazi, KwaMashu, Ndwede and Verulam). The study only focused on KwaZulu-Natal, therefore it is only applicable to that Province. Nevertheless, because it is a true reflection of the KwaZulu-Natal Province and not of South Africa as a whole, lessons can still be gained by small, micro, and medium-sized businesses in other regions. In addition, a questionnaire with predetermined answers

was used to collect primary data from the people who took part in the study. This questionnaire included preset statements that were generated from a comprehensive examination of the relevant literature in addition to the research objectives. Open-ended questions for additional comments were omitted from the questionnaires.

## **1.16 STRUCTURE OF CHAPTERS**

This research study is comprised of seven chapters.

### **Chapter One: Background and overview of the study**

This section introduces the study and offers an overview of the research that will be conducted, providing contextual information regarding the study's background, research topic, and aim. Subsequently, the section proceeds to outline the research objectives and questions. This chapter offers a comprehensive analysis and clarification of the theoretical framework that was used as the basis for the research undertaken.

### **Chapter Two: Literature Review**

This chapter presents a critical analysis of the entrepreneurship literature: it starts with a survey of the local and global scientific literature on entrepreneurship and the features of rural enterprises and provides insights into the challenges experienced by rural businesses, with a special focus on the rural areas of the KwaZulu-Natal Province.

### **Chapter Three: Analysis of the influence of modern technology and the adoption intent of rural entrepreneurs**

This chapter presents the theoretical and conceptual frameworks that influence the use of modern technology, and the adoption intent of rural entrepreneurs. Moreover, the

precise context to the study's justification is provided by the literature reviews undertaken in chapters two and three.

#### **Chapter Four: Research Methodology**

This chapter provides an overview of the research techniques and design used, encompassing a detailed examination of several aspects such as sample selection, target population, data collecting, and the creation of the measuring instrument for each of the specific objectives. This chapter also includes the ethical considerations undertaken in this research.

#### **Chapter Five: Data analysis, interpretation, and discussion**

This chapter provides a comprehensive overview of all of the information that was gathered, as well as an interpretation of those findings and a discussion of how they relate to the goals and objectives of the study. The findings are evaluated further in conjunction with the secondary data, and they are compared to the hypotheses that were developed, based on the findings.

#### **Chapter Six: Discussion of key findings**

This section presents the primary outcomes of the data analysis and establishes their correlation with the existing body of research.

#### **Chapter Seven: Conclusion and Recommendations**

This section outlines the conclusions that were derived from the research findings and provides recommendations based on the empirical analysis. The chapter culminates by providing guidance for prospective research endeavours.

## **1.17 SUMMARY**

The present chapter offered an introductory perspective and comprehensive summary of the study. The aim of this study was to determine the influence of modern technology on emerging entrepreneurs in the rural KwaZulu-Natal Province. The research study's goals and objectives were outlined a thorough description of the investigation was also offered. Moreover, this chapter provides an understanding of the motivation behind this research from the discussion of the study's significance and the background to the study.

Additionally, this chapter provided an introductory overview of the research methodology, encompassing many components such as the research design, target population, sampling technique, data collection procedures, data analysis methods, pilot study, considerations of validity and reliability, maintenance of anonymity and confidentiality, ethical considerations, and finally, an acknowledgment of the limitations inherent in the study.

The second chapter provides a detailed analysis of the existing literature, offering a solid basis for understanding rural entrepreneurship and its pertinent components in relation to this research which was to determine the influence of modern technology and the impact it has on new business ventures in the rural KwaZulu-Natal Province.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 INTRODUCTION**

This chapter delves into the significance of rural entrepreneurship in relation to the economic advancement of a nation, while also providing an understanding of the viewpoint on rural enterprise growth. Furthermore, this literature review comprehensively investigates the challenges experienced by rural entrepreneurship enterprises across local, national, and global contexts. The importance of rural entrepreneurship in the global context is highlighted and emphasis is placed on the significance of the challenges experienced by emerging rural entrepreneurs, and the impact it has on ICT adoption.

### **2.2 DIGITAL TECHNOLOGIES AND TRANSFORMATION**

The Fourth Industrial Revolution has radically changed the technological landscape and is likely to shape how rural areas succeed in such a challenging environment (Cowie, Townsend and Salemin, 2020:169). Frontier technologies which encompass digitalisation, the Internet of Things (IoT), Augmented Reality (AR) and robotics have contributed in a complex and dynamic manner on how individuals and businesses engage with one another (Dirican 2015:565). The COVID-19 pandemic has catapulted various industries towards adopting and embracing modern technology to be relevant and to thrive under harsh economic constraints. Many individuals were forced into confinement and had to rely on technology to work remotely or study and make purchases online. These challenges were particularly important to consider for those individuals, in rural areas, who travelled longer distances to get to work.

This aspect of teleworking and online learning could be the catalyst of modern technology that drives digitalisation across all sectors and accelerates economic policy change and digital growth for rural entrepreneurship (Cowie *et al.*, 2020:169). Cowie

*et al.* (2020:169) further opine that as the internet landscape changes, the digital divide still exists between urban and rural areas. Research has indicated that small, micro and medium enterprises (SMMEs) are integral towards driving economic growth in developing countries by reducing unemployment and contributing to the overall Gross Domestic Product (GDP) (Rena, 2008<sup>a</sup>; Rena, 2009:3).

The 21<sup>st</sup> century is now widely regarded as the era of technology and the advent of the Fourth Industrial Revolution (4IR) has completely changed many societies and economies. The key premise of the 4IR is that the macro economy has largely been impacted and transformed; in a significant shift it has combined the digital, biological, and physical elements across all facets of societies (Philbeck and Davis, 2018: 17). The confluence of these modern technologies such as Artificial Intelligence (AI), Internet of Things (IoT), digitalisation and Block chain has the capacity to empower the poor and improve the standard of living for many rural societies (Goedde, Katz, Menard, Revellat, 2020:5). Entrepreneurs and governments are needed to leverage these technologies to drive economic growth and close the gap prevalent in the current digital divide between urban and rural environments.

Technological advancements have proven to be one of the key drivers in stimulating economic impetus in the majority of developed and developing countries, but this phenomenon is centred mostly in urban areas (Lekhanya, 2014:2717). Technology development and delivery proves to be an absolute necessity which is integral towards ensuring the rural industrialisation stimulus and promote rural entrepreneurship growth (Rena, 2009:3; Lekhanya, 2018:64).

Chatterjee, Gupta, Puadhay (2020:1) and Rena (2008<sup>b</sup>) note that information and communication technologies (ICTs) have proven to be an enabler that drives entrepreneurial intent; moreover, the adoption intention of these ICTs coupled with entrepreneurial orientation provides a necessary boost for the rural entrepreneur and this is evident in some rural areas in India. Fahmi and Savira (2021:455) maintain that modern technologies can help rural entrepreneurs by providing them with a platform to access information faster, which in turn will help them to identify new business opportunities and innovations.

Entrepreneurs have been widely recognised as adding great value to economies and communities and this is evident at both the local and national level of economies (Reynolds, Hay and Camp, 1999:7; Rena, 2008<sup>a</sup>). At the national level, greater gross domestic product (GDP) is evident due to increased entrepreneurial activity and medium sized organisations with high growth have been identified as providing the majority of new jobs (Organisation for Economic Co-operation and Development {OECD}, 2017:5). The entrepreneur at the community level fosters and promotes the creation of wealth through job creation and connecting the community to the broader national economy (OECD, 2017:5).

According to the Association for the Development of Education in Africa (AECD) (2013:7), rural regions in the African context, including South Africa are plagued by lack of infrastructure, inadequate government institutionalised support and compromised service delivery which affects the entrepreneurial milieu. Entrepreneurship scholars have observed many disparities in the entrepreneurial activities encompassing both urban and rural economies for several years and has subsequently provided the context and understanding of how the entrepreneur operates in these domains (Haase, Lautenschläger, and Rena, 2011:114; Iyengar, Nilakantan and Rao, 2021:360; Miles and Morrison, 2020: 934; Lang, Fink and Kibler, 2014:204).

Embracing digitalization and the multitude of advanced digital technologies is an integral aspect of accelerating economic growth, and many governments have channelled this phenomenon towards rural transformation with the aim of advancing the rural population and providing more opportunities to alleviate poverty and become more socially connected (Fahmi and Sari, 2020:1).

China has committed to the transformation of the many rural agricultural enterprises by improving information and communication technologies (Zhou, Guo and Liu, 2019:339). Digitisation: Economic and Social Impacts in Rural Areas (DESIRA) is a project initiated in Europe towards achieving rural digitalization by 2040, while Campaign for Female Education (CAFEMED) in the rural areas of Tanzania, Ghana, Malawi, Zimbabwe, and Zambia, has spearheaded digitalization of education to empower young girls through e-reader literacy programmes (Mukhtar, 2022:1).

Growing interest has been shown in the potential of internet of things (IoT) technology to help reduce poverty and improve rural residents' quality of life. In the modern business environment, new strategies to promote creativity and invention inside rural firms are needed. To do this, rural entrepreneurs must have a thorough awareness of the influence of modern technology on their businesses and how to use it effectively.

The introduction of mobile phones, instant short messaging systems (SMS), and multi-media message systems (MMS) has cut waiting periods for conveying key decisions in far-flung rural areas of South Africa, where communication would often take several weeks to complete before the advent of these technologies according to Kahn, Inman and Verhoef (2018:255). Can and Kaya (2016:486) assert that connecting with customers and vendors could be accomplished through the use of mobile apps such as WhatsApp, Facebook Messenger, and Skype. In addition to this, they can be utilized to manage inventory and handle payments.

Business owners that take advantage of social media sites like Facebook, Instagram, and Twitter can increase exposure for their companies and the products and services they offer through promotional efforts. (Tiruwa and Yadav, 2015:49). They can develop pages for their companies, provide updates about their wares, and engage in conversation with customers (Tiago and Verissimo, 2014:704).

Public information and services, particularly for rural and underprivileged groups in South Africa, are more easily accessible compared to ten years ago. In addition, the development of modern technology has made it possible for rural business owners to gain access to information and resources, such as online classes and training programmes, which can assist them in expanding their skill sets and levels of expertise as well as enhancing their methods of conducting business.

### **2.3 RURAL ENTREPRENEURSHIP**

The phenomenon of rurality has for decades been attributed to having a negative connotation and has been the catalyst which drives hordes of individuals to urban areas seeking better life prospects (World Bank, 2008:45). The predominant industries of

agriculture and forestry operate in these rural environments and has long been viewed as the cornerstones of a sedate lifestyle, garnering respect for the land and animals alike (Das, 2014:178). The term “Entrepreneurship” has subsequently been lauded as the driver for economic growth and development and the rural entrepreneur operating in this informal landscape can be classified as bringing about rural industrialisation (Rena, 2009:3; Lekhanya, 2016:39).

Poverty alleviation has been at the forefront of many government institutions and entrepreneurship has been identified as a key proponent towards addressing poverty reduction (Sutter, Bruton and Chen, 2019:197). Si, Ahlstrom, Wei and Cullen (2018:2) note that entrepreneurial activity in rural areas has increased somewhat in the last few years, however, the majority of enterprises remain informal and are underscored by various financial, social and development impediments, not experienced in urban areas (Rena,2008<sup>a</sup>; Herrington and Coduras, 2019:2).

The Chinese government has been spearheading national strategies to drive rural entrepreneurship and promote rural activities (Zhou, Guo and Liu, 2019:339), establishing township and village enterprises (TVEs) as a poverty alleviation strategy (Li, Zhang and Matlay, 2003:496).

India is predominantly a country of villages which encompasses around 75% of the labour force earning a living wage from agriculture and the subsequent activities that manifest from this industry (Sathya, 2019:7). Government and policy makers in India have been continuously promoting economic reforms to promote the growth of rural entrepreneurship (Sathya, 2019:8; Mtisi, 2016:13; Klofsen, *et al.*, 2019:1). These authors propose that rural entrepreneurial initiatives require the support policies of development agencies and government authorities to encourage and promote rural entrepreneurial activities.

Hoy (1983:35) made the assertion that “a rural entrepreneur is someone who is independent, risk-taking, achievement-oriented, self-confident, optimistic, hardworking and innovative” drawing attention to the capabilities of a rural entrepreneur in generating employment through new business ventures. By the same

token, Stathopoulou, Psaltopoulos and Skuras (2004:412) concur by quoting Wortmon (1990:330) who defined the concept of rural entrepreneurship as “the creation of a brand-new organization that introduces a fresh product, serves or creates a new market, or utilizes a new technology in a rural environment.”

The endogenous factors of an entrepreneur are modelled on the premise of three integral competencies which encompass motivation and characteristics, social roles, and self-concepts (Robles and Zarraga-Rodrigues, 2015: 828). Competencies are a combination of skills, attitudes and knowledge and as such they are dynamic and prone to change and honed through coaching, experience or training (Kyndt and Baert, 2015:14; Msamule, Vanhaverbeke and Petro.2016: 253). They propose that dominant values and character traits inspire people to display specific behaviour.

Self-management and non-adaptability coupled with risk taking are key constituents for the success of an entrepreneur, as this will lead to more successes for the entrepreneur (Muller and Korsgaard. 2018: 226). Pato and Teixeira (2016:17) and Rena (2009:2) proclaim that a rural entrepreneur is an individual who resides in a rural environment, provides community-based services, whilst also being greatly influenced by the social networks and traits of that particular locality.

Lekhanya, (2018:3) in his study on Digitalisation of Rural Entrepreneurship and Zhang and Li (2018:189), note that faster and simpler information acquisition in the context of rural entrepreneurship aids rural communities in spotting new opportunities and innovations.

## **2.4 THE IMPORTANCE OF RURAL ENTREPRENEURSHIP IN ECONOMIC DEVELOPMENT**

Up and coming small businesses are the cornerstone of many rural areas as the entrepreneurial activities they bring in the form of employment, providing goods and services and creation of wealth help grow the rural sector (Eshker, Gold and Lane, 2017:278). The relationship between entrepreneurship and innovation as a determinant

towards stimulated economic growth has always been a key factor (Galindo and Medez, 2014: 826). This view is supported by Rena, (2009:2), with Stoica, Roman and Rusu, (2020:2) and Ataei, *et al.* (2020:188) declaring that entrepreneurs have the ability to perform market research and spot potential prospects, resulting in having the ability to transform commercial endeavours into legitimate forms of economic activity.

Entrepreneurship is without question one of the best and most effective strategies to improve employment and incomes for people living in rural regions, even though it is not the only one to do so (Ataei, Karimi, Ghadermarzi, and Nourouzi, 2021:185). As a result of this phenomenon, government officials in numerous countries have become increasingly aware of the pivotal role that entrepreneurial activity plays in shaping the economic prosperity of their respective nations (Rena, 2009:3). Job creation is seen as the major drawcard for being an entrepreneur as it directly leads to the creation of job opportunities (Rena,2008<sup>a</sup>). The result of this job creation lessens the burden of the government to provide jobs as well as the dependence on the government for monetary compensation.

Globalisation has seen the job market shrinking at an alarming rate, and the entrepreneur is able to fill this gap by providing much needed employment (Saxena, 2012:25). Das (2014:178) and Ataei *et al.* (2020:187) provide the argument that rural entrepreneurs with the propensity to scan the environment and identify viable business opportunities can act as catalysts towards promoting social transformation and agents of wealth creation. Saxena (2012:26); Zaki and Rashid (2016:32); Urbano, Aparicio and Audretsch (2019:23); Ihejiamaizu (2019:86); Singh and Ashraf (2020:39) support this rhetoric by claiming that entrepreneurial activities are beneficial towards the economic development of a country in the following ways :

- **Formation of Capital:** Investment opportunities arise from an entrepreneurial environment, as investors are willing to engage and invest capital into a viable business proposition. This entrepreneurial ecosystem can lead to venture capital funding, with an injection of capital that benefits the rural communities and getting a good return on investment. Idle savings are mobilised and invested and leads to the formation of capital.

- **Balanced Regional Development:** Entrepreneurs are constantly scanning the environment looking for opportunities with viable business scope. They capitalise on these opportunities provided by governmental and non-government agencies by implementing their business ideas in the rural environment.
- **Generate Employment:** Entrepreneurs stimulate local job creation by providing services and goods that are needed in a dwindling global landscape.
- **Improvement in Standard of Living:** Entrepreneurial activity generates employment opportunities, leading to wealth creation and purchasing power. Increased industrial activity due to an increase in supply and demand for goods and services will drive industrial activity.
- **Equitable Distribution of Economic Power:** Economic power is a result of industrial and business activity and has the tendency to create monopolies in the global domain. An increase in the number of entrepreneurs serves as a deterrent to this concept as it creates wealth dispersion.
- **Awaken the rural youth:** Rural business has the potential to educate and enlighten rural youth introducing them to a variety of ways to practice and promote entrepreneurship as a career.

## **2.5 INTERNATIONAL PERSPECTIVE OF RURAL ENTERPRISE DEVELOPMENT**

Research evidence declares that the rural sector is comprised of predominantly small, micro, and medium enterprises (Rena, 2009:2; Steiner and Cleary, 2014:4). Extant literature denotes the impact of the SMME sector to a countries economic growth, and rural entrepreneurship has been integral in shaping the resilience of rural places through direct and indirect business activities (Steiner and Cleary, 2014:2; Steiner and

Atterton, 2015:30; Ganguly, Jain, Sharma and Shekhar, 2020:120). According to the OECD (2018:16), SMMEs and entrepreneurship contribute to more than two-thirds of the world's GDP and is responsible for the creation and support of 52% of employment generation. According to the World Bank (2022:1), formal SMMEs contribute approximately 40% to the GDP of emerging economies, and these numbers could be significantly higher if informal enterprises were included.

A key determinant that constraints SMME growth was identified as access to finance, which leads to an increasing financing gap when the informal sector is considered (World Bank 2014:2). Dvoulety and Orel (2019:11) declare that entrepreneurial activity on the African continent is growing and sparking the need for entrepreneurial potential, however, youth unemployment remains high, notably in the sub-Saharan African countries. The Global Entrepreneurship Monitor report for the period 2016/2017 declared that the SMME sector in South Africa contributed 36 percent to the country's Gross Domestic Product (GDP), while the National Development Plan (NDP) forecasted that 90 percent of all new jobs will be in the SMME sector by 2030.

Chigunta (2017: 435) posit that entrepreneurship is a catalyst towards poverty alleviation for many young individuals, while Dvoulety and Orel (2019:11), assert that despite many young people venturing into self-employment in the informal sector, many of them are faced with complex challenges such as lack of education and financial affordability when starting a business. This finding is shared by Brixiova, Ncube and Bicaba (2015:12) denoting that potential entrepreneurs in Swaziland are constrained by a multitude of factors, citing lack of entrepreneurial skills, limited access to finance and regulatory government framework. Efobi and Orkoh (2018:525) share a similar observation on the small business environment in Nigeria, where statistics show approximately 65 percent of small enterprises experience failure within the initial three years of operation.

This may mostly be attributed to factors such as inadequate technical expertise, limited availability of financial resources, and restricted market accessibility. In a study conducted on rural entrepreneurship in the United States, it is prudent to note that rural areas constitute the home to nearly 60 million people, which covers 97% of the total

land mass and contributing 10 percent to the Gross Domestic Product (GDP) (Kalina, 2021:1).

Rural entrepreneurship in many rural areas experience challenges such as limited access to capital, as entrepreneurs often require loans from community banks to either start a business or cover operating expenses (Deller, Kures and Controy, 2019:33). Kalina (2021:1) further expands on these challenges by noting that inconsistent internet connectivity and access to a workforce with the right educational background have a significant impact on the viability of rural enterprise development.

The World Bank (2015:1) assert that approximately 115 million, which is around 62 percent of the population in Pakistan, live in rural areas and are beset by poor socio-economic conditions. According to Muhammad, McElwee, and Dana (2017:280), almost two-thirds of the population residing in the Indian sub-continent, which includes Bangladesh, India, and Pakistan, live in rural areas and depend entirely on revenue derived from the agriculturally oriented economy prevalent in these countries. Muhammad *et al.* (2017:281) maintain that the predominantly agriculturally based enterprises are faced with barriers such as the feudal system and poor education, plus the various socio-economic factors, rampant in the rural areas, contribute to the restriction of entrepreneurship and business growth.

Lazhentev and Ivanov (2020:2) have reported, based on data from the European Commission, that the aggregated budgets of the 28 member nations within the European Union throughout the period of 2014-2020 indicate a cumulative financial assistance of 408.4 billion euros allocated towards the domains of agriculture and rural areas. Lazehentev and Ivanov (2020:2) note that rural support garnered special attention on focus areas such as transport, information and communication infrastructure, and education.

According to Price, Shutt, and Sellick (2019:1), the authors argue that small, medium, and micro enterprises (SMMEs) play a crucial role in fostering economic growth in the United Kingdom. However, they note that SMMEs located in rural areas are experiencing slower business growth compared to their urban counterparts. This

disparity can be attributed to the rural SMMEs' reluctance to use information and communication technology (ICT). According to the Department for Business, Energy and Industrial Strategy (BEIS), 16 million people were employed with SMMEs in the United Kingdom and this comprised of 9 million people employed in micro businesses, 4 million in small businesses and 3 million in medium sized enterprises. Competition, red tape, and taxation were identified as the main challenges to SMME growth.

China has been spearheading rural development policies and strategic initiatives for many years, with the aim of revitalizing the rural areas via five key factors as outlined in The Report of the 19th National Congress of the Chinese Communist Party by General Secretary Xi Jinping “building thriving businesses, pleasant living environments, social etiquette and civility, effective governance and prosperity”. According to Statista (2022:1), SMMEs account for 90 percent of business enterprises in China, and are responsible for employing 80 percent of jobs nationwide and contributing over 60 percent to the GDP.

Despite the reforms implemented to oversee economic growth and rural development, many rural areas continue to lag due to geography, infrastructure and poor economic bases, factors normally associated with rural poverty (Zhao and Lu, 2020:1750). The convergence of these exogenous variables, in conjunction with the socio-economic circumstances prevalent in rural regions, particularly the presence of poverty, exerts a discernible influence on the viability of small, medium, and micro enterprises (SMMEs), hence impeding economic progress.

## **2.6 RURAL ENTERPRISE DEVELOPMENT IN SOUTH AFRICA**

The Township and Rural Entrepreneurship Programme (TREP) is an initiative overseen by the Department of Small Business Development in South Africa. Its primary objective is to facilitate the transformation and integration of economic opportunities inside townships and rural regions (dsbd.gov.za). The objective is to provide platforms that provide the necessary legislative framework and business

support infrastructure to facilitate the success of entrepreneurs. In order to enhance the involvement of historically marginalized individuals and small, medium, and micro enterprises (SMMEs) in the public procurement system, the Republic of South Africa implemented the Preferential Procurement Policy Framework Act 5 of 2000 and the Preferential Procurement Regulations of 2001 ([www.gov.za](http://www.gov.za)). The Department of Rural Development and Land Reform developed a total of 9 664 possibilities for skills-development in 2015 to assist rural development efforts, some of which were made available to members of the National Rural Youth Service Corps and agricultural graduates (Gov.za).

There are numerous methods for entrepreneurship development that consider the variety of entrepreneurial contexts, however in South Africa, it appears that this approach is one-size-fits-all (Meyer, Meyer and Molefe, 2016:124). However, rural, and urban areas do not have the same difficulties and resource endowments (Rogerson, 2018:8). In South Africa, the growth of small, micro, and medium enterprises (SMMEs) is severely hampered by inadequate transportation infrastructure and a lack of adequate public services including electricity, water, sanitation, and telephones (Bhorat, *et al.*, 2018:28). Small businesses, especially those in rural areas, lack the necessary support to grow and thrive past the start-up stage.

SMME sector growth and development has been the focus of strategies developed by local municipalities, however, rural SMME development has typically progressed at a glacial pace (Bomani and Derera, 2018:155; Lukhele and Madzivhandila, 2018:886). According to Bomani and Derera (2018:152), the majority of municipalities have realized the value of SMMEs and rural entrepreneurship and are implementing initiatives to support the development of rural entrepreneurship. The initiatives' outcomes, however, have fallen short of expectations as a wide range of other local business owners are excluded from this procedure, including those who run small communications and internet service providers, beauty salons, transportation companies, and agricultural-related enterprises.

Rural entrepreneurs must contend with issues like scarcity, low quality, and a lack of funding, as well as issues with networking, electricity, equipment, marketing, tiny and

remote markets, inadequate transportation systems, and corruption, which invariably curtails the opportunities to grow beyond the agricultural and non-farming micro businesses (Ngorora and Mago. 2018:2).

## **2.7 CHARACTERISTICS OF RURAL ENTERPRISES**

Osunde (2016:259) proclaims that small, micro, and medium enterprises (SMMEs) in rural areas are established in the community and are connected to neighbours, family, or other relations. Osunde (2016:259) further contends that a person who lives in a rural region and starts a SMME there that helps the community's economy is considered a rural entrepreneur operating a business. Moreover, previous studies conducted by Khodamipour and Shafiei (2013:69) as well as Aliabadi *et al.* (2018) have provided evidence that small, medium, and micro enterprises (SMMEs) operating in rural regions might experience immediate economic benefits from their activities, while also contributing to long-term employment generation.

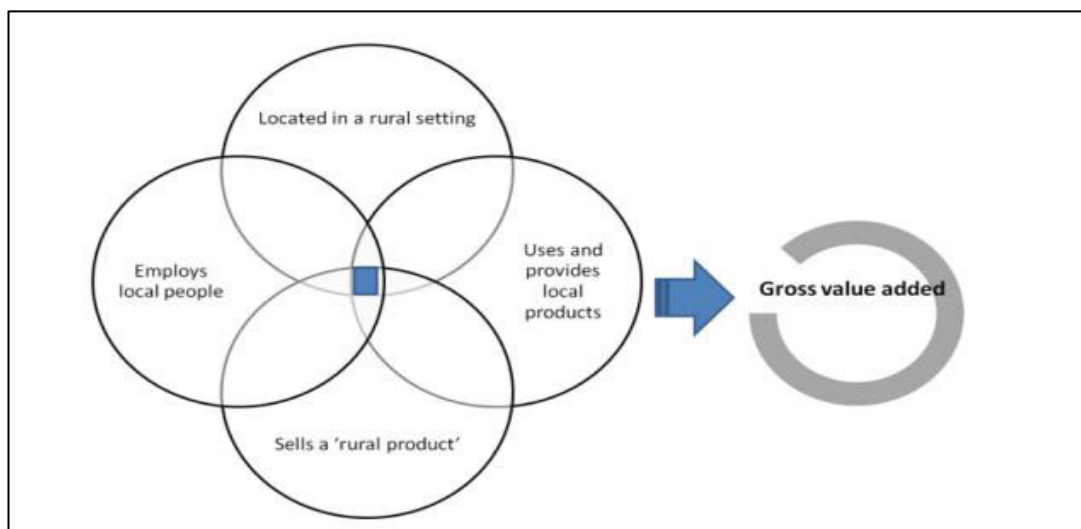
The divide between rural and urban firms, according to Henry and McElwee (2014:5) and McElwee and Smith (2014:307), is arbitrary. The assertion is made that rural firms contribute to the enhancement of economic value, not just inside their local economies but also, in the case of larger businesses, to broader economies and marketplaces. According to Henry and McElwee (2014:4), a rural enterprise can be defined as businesses that operate in rural areas and exhibit rural characteristics by being deeply integrated into the local economy. These enterprises typically employ local individuals to offer goods and services that cater to the needs of the local community, thereby, contributing to the generation of income within the rural environment. Furthermore, Rena (2009:2); McElwee and Smith (2014:435) assert that rural enterprises have been synonymous with farming and agricultural activities.

According to Nagler and Nauder (2017:176), there is empirical evidence that rural households engage in entrepreneurial activities because of both push and pull factors. Furthermore, their research suggests that these households predominantly participate

in industries that have low barriers to entry, such as sales and trade, as opposed to industries that necessitate substantial initial investments like transportation services or professional services that require educational qualifications. The operation of such a business has the potential to incentivize households to mitigate their vulnerability to unforeseen events, as they seek to sustain their consumption levels in the presence of uncertainties and the limitations of insurance and credit markets. The expansion of families, characterized by an increase in excess labour, exerts strain on limited agricultural land, hence compelling household members to engage in entrepreneurial activities (Ataei et al., 2020:187).

Nagler and Naude (2017: 175) further contend that in sub-Saharan Africa, a sizable portion of rural households run and participate in non-farm enterprises in addition to agriculture. Through connections between the non-farm and the farm sectors, the distributional effects of rural non-farm possibilities can be strongly pro-poor (World Bank 2017:3). However, there are other legislative and resource limitations that must be overcome for the poor to take advantage of opportunities in the rural non-farm sector, including those given by mobility. They include a lack of connectivity, education and training in useful skills, finances, and legal land rights.

**Figure 2.1. Characteristics of a Rural Enterprise**



Source: Adapted from Henry and McElwee (2014) and Bosworth (2012)

Pederson (2019: 25) in his research on small firms in rural locations posited that the majority of rural businesses are small, and differences in the relative distribution of the production elements (such as land, labour, capital, and knowledge) among localities have an impact on a firm's performance. Rural business owners manage their companies with a focus on short-term objectives, including, outlining daily tasks to be completed, completing these tasks, and achieving the intended results. The capacity of a rural entrepreneur to succeed is greatly influenced by his or her vision and the transformation of strategy from operational to strategic; from short-term firefighting mode to long-term sustainability vision (Cruz *et al.*, 2022:3).

Furthermore, the trend of rural firms is to be more intimately connected into their local community, creating loyalty and stability among their local clientele that may assist to counteract some of the drawbacks of the rural business environment as noted by (Steiner and Attertone, 2015:34; Cruz, *et al.*, 2022:2). Islam *et al.*, 2011:290), supported by Rodrigues *et al.* (2021:5) claim that the success of a business is greatly influenced by the features of SMMEs, including the origin of the company, its duration of operation, its size, and its capital resources. So, it is possible that the size of rural SMMEs will have a substantial impact on their survival and growth, given that the longevity of an enterprise will determine its ability to succeed (Rena, 2009:3). According to Powe and Love (2020:1), small enterprises in rural areas often fail to achieve economies of scale and scope due to their limited size and lack of organization in cooperatives or other producer organizations, as well as in other economic initiatives. Consequently, it is crucial to understand how long SMMEs have been around in the rural KwaZulu-Natal Province.

According to Fatoki (2018:2), the size and longevity of a company are more reliable indicators of its capacity to endure difficult economic circumstances. Furthermore, he posits that the sustained operation of a corporation can serve as evidence of its non-engagement in opportunistic conduct. This viewpoint, however, excludes rural and undeveloped places like the rural KwaZulu-Natal Province.

## **2.8 EXPLORATION OF CHALLENGES EXPERIENCED BY RURAL ENTERPRISES**

Several studies have shown that rural development has the power to improve the socio-economic well-being of those who live there. As a result, initiatives have been made to promote entrepreneurship in rural areas. The majority of studies on entrepreneurship and rural development are conducted abroad, with a large number of these studies being conducted in India (Nagler and Naudé, 2017:3; Chatterjee, Gupta, Upadhyay, 2020:2; Agarwal and Johal, 2021: 374) and China (Naminse, Zhuang and Zhu, 2019:2595; He, Lu and Qian; 2019:564). Extant literature on rural entrepreneurship lends credence to the challenges that are experienced by rural entrepreneurs (Rena, 2007:). Many rural communities are so deeply impoverished that it permeates every aspect of life there.

Resources for development are insufficient in the rural sector, which is home to a sizable portion of the population of the nation (Ihejiamaizu, 2019:86; Chatterjee *et al.*, 2020:3). According to a study done in the rural KwaZulu-Natal Province by Lekhanya (2010:155), owners and managers of rural SMMEs are limited in their ability to apply marketing techniques due to a lack of marketing knowledge and experience. The study indicates that the operational dynamics of a rural firm are influenced by both internal and external influences. This implies that the aforementioned factors contributed to the growth and sustainability of small, medium, and micro enterprises (SMMEs) in the rural KwaZulu-Natal Province. Extant literature has denoted that rural areas experience drawbacks in terms of location and inaccessible transportation which curtails people's interactions and information, and communications technology is one medium of bridging this gap; however, many rural firms lack social trust (Zhao and Li, 2021:4). Liu and Pang (2015:3) in their study on firm dynamics note that firm survival generally increases with firm age and size, and conversely, firm growth decreases with firm age and firm size. Lekhanya (2016:108) notes that the environmental factor as well as constraints of infrastructure, access to finance and lack of technical skills are some of the key determinants towards failure or success of a rural business venture.

Yet, it is still unclear, how these ideas might apply to rural SMMEs in the context of modern technology adoption, specifically with relation to the rural KwaZulu-Natal Province. Thus, it is imperative to carry out a study of this kind to determine why rural entrepreneurs in the KwaZulu-Natal Province are not utilizing or adjusting to the usage of new technologies as they need to. Some of the constraints that are faced by rural enterprises are outlined as follows:

### **2.8.1 Agriculture and Land Based Enterprises**

Agriculture and animal farming are deemed as the main economic activity of rural businesses (McElwee and Smith, 2014:435) and has traditionally been viewed as a low-tech industry due to being run by small family firms who are hesitant to try new innovative ideas (Rena, 2007:167; Lans, Seuneke and Klerkx, 2013:1). According to the World Bank Global Monitoring Report (2014/2015:1), roughly two-thirds of the world's population is concentrated in the rural areas of low-income countries, and their primary source of income is derived from subsistence farming or other natural resources. Rena, (2009:3); Rodriguez-Pose and Hardy (2015:15) assert that due to farm production requiring technology expertise and investment, the rural based agricultural enterprises are disproportionately marginalized due to lack of technological education and financial investment. Khatiwada *et al.* (2017:1) have noted that low productivity in farming, combined with minimal access to non-farm income sources is a contributing factor that keeps rural areas mired in poverty, without the possibility of increasing their standard of life.

Rena (2004:3), Saxena (2012:23); and Jayadatta (2017:37) concur that agriculture in India is generally characterized by low productivity, as the farming practices are typically subsistence driven and not market driven, and because of limited land available for farming practices, mass unemployment is rife. Lans *et al.* (2013:1) further expand on this topic by noting that family farms are more focused on survival and passing on the business to the next generation as opposed to growth and profit maximization.

Drought hazards are also challenges besetting the agricultural sector, which is noted by Jin, Wang and Wang (2016:1610) citing He *et al.* (2011:236). They proclaim that China is a drought prone country, which has a detrimental effect on the agricultural sector in rural China. Jin *et al.* (2016: 1610) further contend that drought leads to water shortages for crop production and rearing of livestock, which affects the farmers' ability to cope and manage the challenges imposed on their agriculture-based livelihoods.

### **2.8.2 Small size of local market**

Low population densities combined with low disposable income have a direct impact on rural enterprises as the lack of demand for the product and services is a key constraint and affects the ability of the rural business to continue operating (Mtisi, Dube and Dube, 2017:186). Rural customers are economically backward due to illiteracy and unawareness and their poor purchasing power contributes to challenges faced by rural enterprises (Rena, 2009:3; Radhika, 2019:3). Rural entrepreneurs are operating the enterprise with local resources and minimal finance; this further hampers their abilities to compete with their urban counterparts who have access to new technology and innovative products and services (Rena, 2008<sup>a</sup>; Suma and Hemalatha, 2022:36). According to Steiner and Teasdale (2019:144) many rural areas in Scotland experience challenges when it comes to growing their customer base, as the population density is limited, and this curtails further income generation as well as creating issues for businesses in terms of recruiting skilled employees. The study conducted in the Komi Republic of Russia by Lazhentsev and Valentin (2020:6) disclosed that small scale businesses in rural areas continue to experience difficulties when accessing financial resources and markets for products.

### **2.8.3 Rural Labour**

Jayadatta (2017:38) and Koyana and Mason (2017:739) opine that rural businesses frequently struggle to find competent labour due to low educational levels and a lack of local training facilities in the rural labour market. This restriction is also brought on by the generally low earnings supplied by rural businesses and the exodus of the young, active population (Li, Li, and Cui, 2020:2). Due to the dearth of readily available competent individuals, it is frequently necessary to provide on-the-job training to rural employees (Mtisi, 2016:9). Conversely, there exists a belief that the expenditure on labour in rural regions is comparatively lower than that in metropolitan areas. This disparity in labour costs has been associated with certain advantages for rural enterprises, prompting an inclination towards increased workforce recruitment (Rena, 2009:5; Li, Westlund and Liu, 2019:136; Shah and Ahmad, 2019:552).

### **2.8.4 Transportation and Infrastructure**

Transport is one of the major impediments to rural enterprise development as rural areas are besieged by poor road infrastructure which comprises the ability of delivery of orders which in turn leads to increased shipping costs (Rena, 2007:3; Ramakrishna, 2014:4). According to Mtisi, Dube and Dube (2017:190), rainy weather further exacerbates the poor roads, making it inaccessible to get through as the roads are impassable. Mtisi *et al.* (2017: 187) further contend that poor communication infrastructure and erratic power supply contribute to constraints faced by rural enterprises.

According to Manggat, Zain and Jamaludding (2018:640), rural areas in Malaysia continue to experience exclusion and isolation due to poor road infrastructure such as unpaved roads, longer distances that people are forced to travel to get to central district areas and the provision of transportation facilities. The Malaysian government has taken steps to improving infrastructure development in rural areas by establishing the Malaysian Public Works Department and the Ministry of Rural and Regional

Development ministries to improve transportation and infrastructure challenges (Manggat *et al.*, 2017: 641).

### **2.8.5 Access to Finance**

The World Bank (2022:38) identified access to finance as one of the main bottlenecks that impedes the operation and viability of small businesses in Africa. According to Haselip, Desgain and Mackenzie (2014:370) and Rena (2007:2) financial constraints affects both urban and rural enterprises as access to finance requires sufficient collateral, business plans and regulatory documents needed to procure finance. According to Mtisi *et al.*'s (2017:186) research, rural businesses have a more difficult time gaining access to capital since they are unable to establish a track record of creditworthiness and do not have any tangible assets to use as collateral for loans. AECD (2013:11) note that even when finance is available, many small business owners lack the necessary financial acumen that is required to draft financial plans for funding.

A study conducted in the rural district of the Ngarama Sector in Rwanda, posits that access to finance is also hampered by individuals who are financially illiterate and are unable to provide the necessary documents to apply for finance (Rugira, 2018:55). Another study conducted in Benin points out that small farms and family farms in rural areas are unable to get credit due to their inability to generate adequate profit to make the repayment on loans and the accompanying interest rate on these loans (Houensou, Goudjo and Senou, 2021:2). The lack of access to finance for these farmers, indeed, results in low productivity, low incomes and food security (Houensou *et al.*, 2021:2).

### **2.8.6 Lack of Technology**

According to Saxena (2012:28) and Rajendhiran and Masiyamoorthi (2016:79), lack of technology is a rural enterprise constraint which is attributed to compromised

technological infrastructure as many rural areas are too inaccessible to install cabling and equipment leading to poor network coverage. The non-availability of electricity in most rural areas to power technology also has a detrimental effect on the ability of rural enterprises to access technology through computers or community service centres (Patel and Chavda, 2013:32; Mtisi, 2016:12).

A study conducted in Malaysia by Halili and Sulaiman (2019:575) noted that lack of technology in rural areas is attributed to various aspects which includes, inadequate infrastructure, lack of telecommunication systems and low bandwidth. According to Aziz (2020:307) the poor adoption of information and communication technology (ICT) in rural parts of Bangladesh persists owing to several factors. Firstly, the distant locations of these areas make it challenging to establish and maintain ICT infrastructure. Additionally, the lack of a dependable power supply hinders the provision of electricity to support computer hardware and telecommunication systems (Halili and Sulaiman, 2019:575). Furthermore, the limited awareness and understanding of technology among the rural population contributed to the low adoption rates.

The advent of digitalization and the potential for online entrepreneurship holds significant potential as a catalyst for rural enterprises. However, the limited access to technological education and the reluctance of rural populations to adopt technology further exacerbate the challenges associated with establishing a prosperous business in rural areas (Rena, 2008<sup>b</sup>; Patel and Chavda, 2013:33; Sitharam and Hoque, 2016:278).

### **2.8.7 The Regulatory Environment**

Regulations that govern the establishment of a business is often complex and difficult to understand, resulting in many red tape complexities which means that many rural enterprises do not comply with regulations as businesses are often run illegally (Sitharam and Hoque, 2016:279). Furthermore, rural enterprises are typically constrained by the challenges that are associated with the legal and regulatory

framework that the government enforces on urban enterprises (Keter, 2012:816; Andrew, 2015:1-16; Lyee and Cowling, 2015).

A study conducted on female rural entrepreneurs in Nigeria by Emeh (2021:32) attests to the fact that many budding entrepreneurs are either unaware of the regulations or too lazy to register their small business or find the bureaucratic process extremely taxing. A similar study done in Dar es Salaam, Tanzania by Naegels, Mori and D'Espallier (2022:4) support this theory, noting that women entrepreneurs own 52% of small and medium businesses, yet are discouraged to proceed due to the administration required.

### **2.8.8 Availability of Business Premises**

Accessing suitable premises to operate a business is another constraint facing rural enterprises as lack of space often means that entrepreneurs either operate the business from the street or their homes (ADEA, 2013:58). The scarcity of business premises could perhaps be attributed to inadequate financial gains experienced by private sector developers in areas where there is a lack of entrepreneurial activity, leading to a diminished demand for commercial real estate (OECD, 2009:163). Ramakrishna (2014:2) and Bomani and Derera (2018:153) posit that rural areas are not attractive investment opportunities to private developers as they are characterized by low population density and low-income households and these constraints have a negative impact on a rural enterprise as it limits the growth potential.

## **2.9 CLASSIFICATION OF SMALL, MICRO AND MEDIUM ENTERPRISES (SMME's) IN SOUTH AFRICA**

In academic circles as well as in discussions of policy, there is no one, uniform definition of an SMME. There are differences between the definitions used in the public and private sectors, making it often difficult to define SMMEs in the South

African environment. Small, micro, and medium, enterprises (SMMEs) exhibit a wide variety of diversity, encompassing all sizes ranging from micro to small and to medium businesses. These enterprises are active participants in all economic sectors, including but not limited to manufacturing and information and communications technology (ICT), retail, tourism, business services, and agricultural processing, according to the common characteristics espoused by most classifications.

SMMEs are generally referred to as "small enterprises" under the National Small Business Amendment Act (Act No. 29 of 2004), which defines the former as follows: The term "small enterprise" refers to a corporate entity that is separate and autonomous, along with any branches or subsidiaries it may have, including cooperative firms, that is principally engaged in any area or subsector of the economy and is controlled by one or more owners.

Table 2.1: The National Small Business Act divides SMMEs into the following categories:

Category of SMME	Characteristics
<p><b>Survivalist Enterprise</b> women represent approximately 56% of this category</p>	<p>Operates in the informal sector of the economy. Mainly undertaken by unemployed persons. Income generated below the poverty line, providing minimum means to keep the unemployed and their families alive. Little capital invested, not many assets. Not much training required to operate. Opportunities for growing the business very small.</p>
<p><b>Micro Enterprise</b> women represent approximately</p>	<p>Between one to five employees, usually the owner and family. Informal – no license required, no formal business</p>

38% of this category with no employees, and 15% of this category with 1-4 employees	premises, no labour legislation necessary. Turnover below the VAT registration level of R300 000 per year. Basic business skills and training. Potential to make the transition to a viable formal small business
<b>Very Small Enterprise</b>	Part of the formal economy, use technology. Less than 10 paid employees. Includes self-employed artisans (electricians, plumbers etc.) and professionals.
<b>Small Enterprise</b>	Less than 10 paid employees. More established than very small enterprises, formal and registered, fixed business premises. Owner managed, but more complex management structure.
<b>Medium Enterprise</b>	Up to 200 employees. Still mainly owner managed, but decentralised management structure with division of labour. Operates from fixed premises and complies with all formal requirements.

Source: The National Small Business Act of South Africa

Regardless of the criteria adopted, the government has acknowledged the value of SMMEs and entrepreneurship for the creation of jobs and economic growth. Maksimov, Wang, and Luo (2017:245) and Zafar and Mustafa (2017:2) hypothesize that the capacity of Small, Medium, and Micro Enterprises (SMMEs) to foster social inclusion, mitigate poverty, and ensure equitable access to opportunities within society holds considerable importance. Lack of employment causes poverty, crime, and social

unrest. South Africa's underdeveloped informal economy has enormous potential to expand provided appropriate policies are put in place to support it (Phiri, Majola and Makelane, 2016:123). Eliminating barriers to entry into the market is necessary, and SMMEs and entrepreneurship need to be supported and fostered (Molefe, Meyer and de Jongh, 2018:9).

Thus, the South African government has committed to fostering and assisting SMMEs through policies, plans, rewards, and funding schemes (Department of Small Business Development, 2019). Although South Africa has made many efforts to support SMMEs, the current environment makes it challenging and hazardous to operate a small business, and the failure rate is significant (Phiri *et al.*, 2016:124).

Despite government initiatives, SMMEs, particularly in rural areas and townships, continue to languish in the informal economy with little opportunity of moving into the mainstream economy (Rena, 2007:2; Phiri *et al.*, 2016:127). Many give up after a couple of years, compared to 2013 and virtually halved when compared to 2010. South Africa's entrepreneurial intention has decreased by about 30% (from 15.4% to 10.9%), according to the 2015/2016 GEM (GEM, 2016). Eighty percent of South Africans still think that being an entrepreneur is a good career choice, despite the low success record of SMMEs and entrepreneurship (GEM, 2016:21).

According to Staden's (2022:458) research, the impact of several factors on South African Small and Medium-sized Enterprises (SMMEs) has been examined. It has been observed that despite the significant role played by SMMEs in terms of employment and economic growth, South Africa exhibits one of the lowest rates of successful SMME establishment on a global scale. Seventy percent to eighty percent of small firms fail in the first year, and just approximately half of those that survive do so for the following five years, according to the Department of Small Business Development (OECD, 2022:5).

Due to the large density of hawkers and other informal traders, rural areas in South Africa tend to have more SMMEs. Gauteng (46% of official SMMEs in South Africa) is the region with the highest concentration, followed by the Western Cape (16%). In addition, Gauteng holds 31% of the country's informal SMMEs, followed by

KwaZulu-Natal (19%) (SEDA, 2016:17). The performance of SMMEs and entrepreneurship has been underwhelming, notwithstanding governments initiatives. There is thus a need to conduct additional research and delve deeper into the problems that are affecting SMMEs and entrepreneurs. The problems that SMMEs and entrepreneurs are facing does not seem to be fully captured by prior studies. Moreover, SMMEs and entrepreneurs may face distinct challenges in townships and rural areas such as KwaZulu-Natal than they do in other places.

## **2.10 SUMMARY**

Since the study's focus was on the influence of modern technology on emerging entrepreneurs in rural KwaZulu-Natal (KZN), this chapter provides a comprehensive analysis of the existing research that examines the correlation between the sustainability and expansion of enterprises in rural regions, while also addressing the diverse obstacles faced by these small-scale organizations. The challenges and growth of the rural enterprise business on a local, national, and global level are covered in the literature review. The preservation and growth of rural enterprises play a key role in fostering job creation and economic advancement within rural regions, particularly in the rural districts of KwaZulu-Natal. This review emphasized the significance of this as well as the obstacles and hurdles to growth that rural KwaZulu-Natal SMMEs faced, which was also highlighted in contrast to other nations worldwide. The subsequent chapter presents a theoretical framework that examines the internal and external factors that impact on the adoption of modern technology in the rural region of KwaZulu-Natal.

## **CHAPTER THREE: ANALYSIS OF THE INFLUENCE OF MODERN TECHNOLOGY AND THE ADOPTION INTENT OF RURAL ENTREPRENEURS**

### **3.1 INTRODUCTION**

This chapter introduces a theoretical framework that analyses the internal and external factors influencing the adoption of contemporary technology in the rural region of KwaZulu-Natal. In addition, this chapter provides an overview of the theoretical perspective on technology adoption and emphasizes the conceptual foundations of entrepreneurial orientation. The review of literature in this chapter provides persuasive evidence that the adoption of modern technology in rural regions, namely, in the southern KwaZulu-Natal region, continues to encounter substantial barriers. Furthermore, the aspect of social media and social networking in the rural context is explored to give an understanding of how rural entrepreneurs make use of these tools to grow their businesses.

### **3.2 INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ADOPTION**

Adams and Jumpah (2021:3) citing (Verkaart *et al.*, 2017:51) proclaim that in order to increase production and income in rural areas and ultimately combat poverty, modern technology development, transfer to, and use by rural entrepreneurs are essential. Wossen *et al.* (2017:223) posit that if properly implemented, adoption ought to, *ceteris paribus*, boost production and bring in more money for rural economic development. Adoption of new technologies can, therefore, boost economic growth, open up new marketing options, and assist millions of farmers in escaping poverty.

According to Jayadatta (2017:39), business information is not typically sourced via modern technologies. However, they may, in some cases, have a detrimental impact on the firm itself; rural entrepreneurs frequently rely on social networks, family ties, and personal contacts to spread the word about their enterprises. Faster internet technologies are becoming available, but they will cost more for rural homes and companies than they will for urban residents and workers. Due to their location, people in rural areas could also have fewer options when choosing their broadband provider (Salemink *et al.*, 2017: 365 and Townsend *et al.*, 2016:32). The digital gap can be reduced with faster internet technology, but better internet connections are insufficient on their own.

Rural populations require digital literacy as well. Internet connections do not contribute to the growth of rural communities and businesses without sufficient knowledge of digital advancements and the skills to exploit them (Salemink *et al.*, 2017: 366). In the context of SMME businesses, less complicated issues that affect technology adoption include resource constraints, risk, procedural complexity, and technological challenges (Ritz, Wolf and McQuitty, 2019:181).

Both the supply and demand sides of the information and communication technology adoption equation appear to be problematic in rural areas. Supply-side problems include factors like inadequate technical infrastructure and a lack of information and communication technology talent. Demand-side problems include, for instance, the absence of a need for and knowledge of the advantages of information and communication technologies (Ritz *et al.*, 2019:56). Information and communication technology adoption rates among remote rural enterprises are lower than those of urban businesses, according to research on the success of small rural businesses using ICT (Raisanen and Tuovinen, 2020:55; Salemink *et al.*, 2017:365 and Townsend *et al.*, 2016: 32).

Further research is, therefore, required to find more trustworthy and accurate justifications for rural entrepreneur information and communication technology adoption behaviour. Additionally, it is intriguing to investigate how business owners in rural areas have used modern technology like mobile and social media to find new

opportunities (Lokuge, 2021:272). As a result, the application of modern technology to rural entrepreneurship is a crucial but under-researched area in the field of information systems. These aspects, specifically regarding KwaZulu-Natal, have never been examined in a rural setting. Consequently, this study aims to explore these factors and assess the influence they exert on the rural entrepreneurs in KwaZulu-Natal.

### **3.3 THEORETICAL PERSPECTIVE OF ICT ADOPTION FOR RURAL ENTREPRENEURS**

Information and communication technologies (ICTs) give rural entrepreneurs an additional opportunity to expand their businesses. Yet, these enterprises are unable to develop into engines for rural economic growth and job creation due to the difficulties associated with embracing and utilizing ICTs (Rena,2008<sup>b</sup>; Bvuma and Marnewick, 2020:2). The phenomenon wherein consumers choose to acquire, use, and employ contemporary technology over a period, with a proactive inclination rather than a mere passive acceptance, is commonly denoted as acceptance (Bvuma and Marnewick, 2020:5).

Over the course of the last three decades, a diverse array of models has been developed to delineate and establish the interconnections between individuals, systems, and environmental factors that can influence the acceptance of information systems. The Technology Acceptance Model (TAM) is the strategy that has the most sway, has been tested the most, and is best operationalized (Davis, 1989:323). TAM clarifies the technology determinant acceptance, which can support both theoretical and economic viewpoints while simultaneously explaining a user's behaviour in relation to a wide range of evolving end-user computing technologies (Davis, 1989:323).

The foundation of this paradigm is rooted in the theoretical framework of social psychology, particularly the Theory of Reasoned Action (TRA), together with broader principles of social psychology (Fishbein and Azjen, 1975:1). According to the Theory of Reasoned Action (TRA), attitudes exert an impact on beliefs, subsequently shape

intentions, which ultimately manifest in observable behaviour. Brezavek, Spal and Znidarsic (2014: 118) theorized that in addition to being influenced by other external factors, which could change users' behaviour towards the use of a particular system, the acceptance of technology utilizing two constructs (such as perceived ease and usefulness) could also be affected.

The Theory of Planned Behaviour (TPB) proposed by Ajzen (1991) represents an extension of the Theory of Reasoned Action (TRA) with the aim of rectifying the limitations of the original model in accounting for behaviours that individuals possess and have only partial control over. However, while these models have seen extensive use in affluent countries, little has been done to implement them in developing countries, particularly in African countries (Teo, Luan and Sing, 2008:267; Nicholas-Omoregbe *et al.*, 2017:107).

The Unified Theory of Acceptance and Use of Technology (UTAUT) is widely recognized as a prominent model in the field of technology acceptance and adoption (Venkatesh *et al.*, 2003:427). Various paradigms related to technology acceptance and adoption, such as the Motivational Model (Deci & Ryan, 1985), Technology Acceptance Model (Davis, 1985), Innovation Diffusion Theory (Rogers, 1995), and Theory of Planned Behaviour (Fishbein & Ajzen, 1975), have been incorporated into the Unified Theory of Acceptance and Use of Technology (UTAUT) (Williams *et al.*, 2015).

The primary objective of this study was to assess the existing knowledge base pertaining to an individuals' adoption in embracing new information technologies. The study comprised of eight well-known models and examined the similarities and differences between them.

### **3.3.1 The Theory of Reasoned Action (TRA)**

According to the TRA, the reasons of intentionally chosen behaviours depend on a person's attitude toward the behaviour and their understanding of the underlying social

forces. The notions of behavioural attitude, subjective norms, and perceived behavioural control were introduced in Fishbein and Ajzen's Theory of Reasoned Action (Fishbein & Ajzen, 1977). These concepts are then utilized to drive intentional behaviour (Ajzen, 1991). Individuals' attitudes reflect their general evaluations, as well as their good or negative feelings in relation to engaging in a specific behaviour. An individual's attitude is subjective and impacted by their views regarding the new technology. It is crucial to gather more information from other residents and cultures to assess the validity of TRA and TAM because they were initially designed and tested in industrialized nations.

### **3.3.2 The Theory of Planned Behaviour (TPB)**

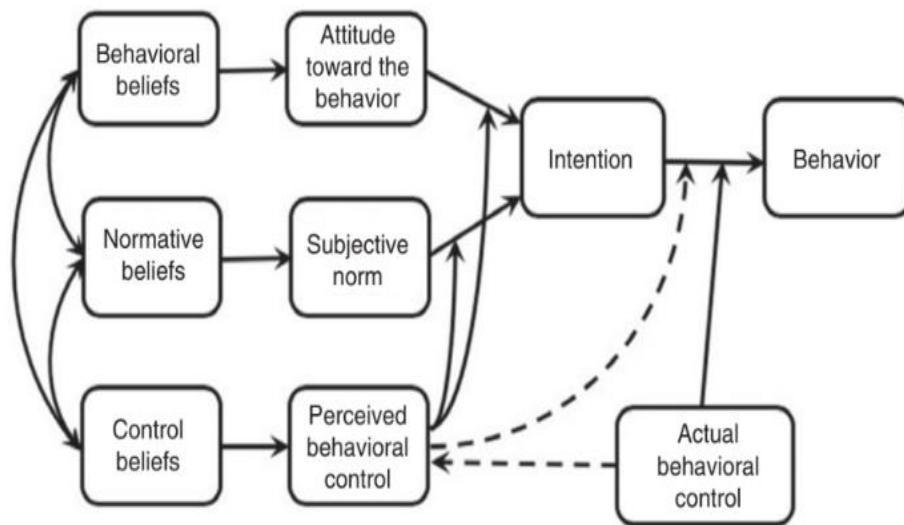
The Theory of Planned Behaviour (TPB), which was initially presented in 1985 (Ajzen, 1985:182; Ulker-Demirel and Ciftci, 2020:210), has become recognized as one of the socio-psychological models that has had the most significant impact on the study of human behaviour. According to the Theory of Planned Behaviour, perception of behavioural control exerts an additional influence on intentions and, as a result, actual behaviour, in addition to attitude and social pressures (Ajzen and Schmidt, 2020:18).

The Theory of Planned Behaviour expanded the TRA to take into consideration situations where people don't have complete control over the outcome. The presence of certain abilities and resources, as well as their perceived value in achieving certain goals, affects perceptions of behavioural control. The perceived effects of engaging in the behaviour and the subjective assessments of these effects are referred to as behavioural beliefs (Ajzen and Schmidt, 2020:20).

Behavioural beliefs influence whether one develops a favourable or unfavourable "attitude toward the behaviour." According to Ajzen and Schmidt (2020:20), normative beliefs are connected to the perceived standards of referenced persons or groups, and when combined, they offer a sense of social pressure (in comparison to subjective norms) about the expression of conduct. Control beliefs focus on the

perceived existence of circumstances that help or hinder a person's capacity to accomplish a behaviour (Ajzen and Schmidt, 2020:20). Pathak, Brown and Best (2019: 1294) concur that the TPB has the capacity to capture more attitudes and beliefs about technology acceptance.

**Figure 3.1: Theory of Planned Behaviour**



Source: The Handbook of Behaviour Change – Ajzen and Schmidt (2020:19)

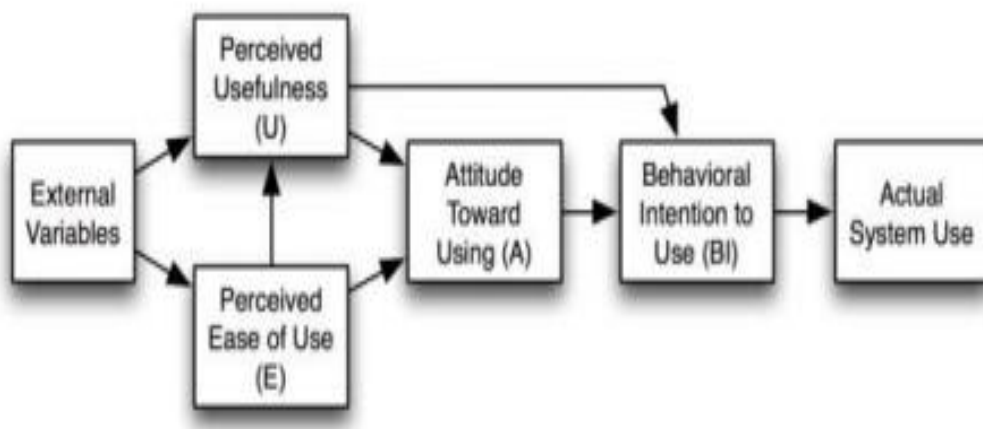
### 3.3.3 Technology Acceptance Model (TAM)

The technology acceptance model is predicated on the concept that an individual will derive greater benefit from a piece of technology if doing so requires less effort on their part. Despite the numerous training programmes encouraging business owners to adopt ICT as a new method of executing a task, overall business owner acceptance of ICT is still low, since most business owners believe that modern technology adoption is very challenging (Ahmad *et al.*, 2014:4).

The theoretical framework of the Technology Acceptance Model (TAM) is founded on the fundamental concept of perceived usefulness (PU), attitude (A), perceived ease of use (PEOU), and behavioural intention (BI) (Perumal, Qing and Jaganathan, 2022:597-598; Davis, 1989:323). There exists a diverse range of marketing-related subjects that employ the Technology Acceptance Model (TAM), such as self-service technology, the integration of social media, mobile Customer Relationship Management (CRM) technology, sales force automation tools, and online commerce (Chowdhury *et al.*, 2014: 473; Veldman, Van Praet and Mechant, 2015: 4; Rodriguez and Trainor, 2016: 69; Ashraf, Thongpapani and Auh, 2014:70. Furthermore, it is worth noting that there is a connection between the aforementioned topic and post-use assessments (Kim and Forsythe, 2008:47), as well as revisit intents (Reynolds and Ruiz de Maya, 2013:627), and attitudes (Klein, 2003:43; Kulviwat, Brunner and Leelankavil, 2014:192); technology usability and simplicity of use are also related to revisit intentions.

The concept of self-efficacy holds significant relevance in relation to the adoption of high-tech innovations. People are more likely to anticipate benefiting from modern technological innovations when they are more certain that they can grasp or use them.

**Figure 3.2: TAM Conceptual Framework**



Source: Davis, Bagozzi and Warshaw (1989:395)

### 3.3.4 Diffusion of Innovation (DOI) Theory

The Diffusion of Innovation Theory is a sociological theory that aims to provide an explanation for the process by which new ideas, goods, and technologies are disseminated within a society or social system, as posited by Wani and Ali (2015:3). Since 1962, when Everett Rogers first proposed the theory, it has been extensively utilized in fields such as marketing, technology adoption, and public health (Rogers, 2010:18). According to the theory, the acceptance of an invention is a process impacted by a variety of elements, including the qualities of the innovation, the social system into which it is introduced, and the communication channels used to promote it. (Magsamen-Conrad and Dillon, 2020:2).

The diffusion of innovations (DOI) theory can help explain why and how specific inventions spread among people, e.g., health innovations (Dearing and Cox, 2018:183). However, in terms of concept, an innovation comprises not only the adoption of new hardware or software, but also the adoption of new ideas, processes, and/or services (Neumeyer, Santos and Morris, 2020: 1606).

Wani and Ali (2015:110), citing (Rogers, 2010:18) surmise that the innovation diffusion theory has five distinct phases to the adoption process: awareness, interest, evaluation, trial, and adoption. According to Attie and Meyer-Warden (2022:6), the diffusion of innovation theory categorizes adopters based on their receptiveness to novel experiences. In the context of adopting new innovations, the theory identifies innovators as the initial group, followed by early adopters, the early majority, the late majority, and finally laggards.

In general, the theory of the diffusion of innovation provides a framework for understanding the reasons and mechanisms behind the success or failure of specific innovations in the market, and it can be of assistance in the creation and promotion of new ideas and goods. The Diffusion of Innovation (DOI) Theory can influence the rate at which rural entrepreneurs adopt new technologies and innovations, thereby, influencing rural entrepreneurship significantly (Salemink *et al.*, 2017:361).

Understanding the characteristics of ICTs can assist rural entrepreneurs in KwaZulu-Natal to make informed decisions regarding which technologies to employ.

### **3.3.5 Unified Theory of Acceptance and Use of Technology (UTAUT)**

Eight models were put to the test in longitudinal field investigations of four different organizations by Venkatesh *et al.* (2003: 427). Based on the analysis of the eight models, it was determined that the inclination of users to adopt technology is significantly impacted by four fundamental components or core constructs. These constructs, namely "effort expectancy" (also known as perceived ease of use), "performance expectancy" (also known as perceived usefulness), "social influence" (also known as subjective norms), and "facilitating conditions," play a crucial role in shaping the behavioural intention to adopt or utilize a new technology. Furthermore, it has been observed that these constructs are subject to moderation by various variables such as age, gender, experience, and voluntariness of use (Venkatesh *et al.*, 2003:446). In addition to these four variables, the UTAUT model incorporates three other variables that moderate the relationship between the four primary variables and intention to use technology:

- Gender - Women are less likely to intend to use technology than males.
- Age - The intention of older individuals to use technology is typically lower than that of younger individuals.
- Experience - People who have used technology before tend to have stronger intentions to use it than people who have had little or no experience.

UTAUT has received accolades for its ability to clarify the elements influencing the adoption and use of new technologies. Moreover; different UTAUT associations are predicted to be moderated by user characteristics like age, gender, and experience. The UTAUT has been recognized as a more reliable theory for forecasting the adoption of technology since it can account for roughly 70% and 50%, respectively, of the diversity in behaviour intentions and use behaviours (Thusi and Maduku, 2020:2).

### **3.3.6 Rural Technology Acceptance Model (RuTAM)**

In order to solve the scarcity model of utilizing technology in rural areas that are physically remote and economically challenged, Islam (2011:6) proposed the concept of RuTAM as a possible solution. The growth of information and communication technologies is widely acknowledged as an important instrument that has the potential to assist in the emancipation of impoverished people; the enhancement of their abilities; the enhancement of their level of productivity, and the improvement of their quality of life through higher economic and educational levels (Tambotoh, Manuputty and Banunaek, 2015:180).

The Rural Technology Acceptance Model, often known as RuTAM, is a relatively new idea conceptually, and there has not been a lot of research associated with the adoption of information and communications technology (ICT) in rural communities that uses this methodology (Tambotoh *et al.*, 2015:181). According to Venkatesh *et al.* (2003:427), the degree to which an individual is able to process information is one of the elements that distinguishes an adopter from a non-adopter. The degree to which the user's employment or the task at hand is compatible with the technology is another component that is equally significant when attempting to describe the level of technology adoption for rural entrepreneurs.

## **3.4 ENTREPRENEURIAL INTENTION – A THEORETICAL FRAMEWORK**

The proliferation of small, micro and medium-sized firms (SMMEs), entrepreneurial endeavours, and individuals engaging in entrepreneurial activities within an economy has emerged as a crucial area of interest for governments, scholars, and various other stakeholders (Pulka, Ramli and Mohamad, 2021:587). The reason for this is that small, micro, and medium enterprises (SMMEs) provide a substantial contribution to the generation of job opportunities, the expansion of gross domestic product (GDP), and the accrual of export revenues, as stated by the Organisation for Economic Co-

operation and Development (OECD) in 2017. This phenomenon leads to a decrease in the rate of unemployment and subsequently addresses the underlying social, political, and economic challenges inside an economy.

The relationship between Entrepreneurial Orientation, Entrepreneurial Competencies, Entrepreneurial Networks, Entrepreneurial Attitudes and Beliefs is explored in the context of rural entrepreneurship and aims to comprehend and explain the variables that affect entrepreneurial behaviour and activities in rural areas (Haase, Lautenschläger, and Rena, 2011:114; Rena, 2007:2). The framework offers an organized approach of thinking about the essential components and how they interact. It helps researchers, policymakers, and practitioners identify key factors and develop strategies to promote and support entrepreneurship in rural KwaZulu-Natal.

### **3.4.1 Entrepreneurial Orientation**

According to Mahrani and Cahyono (2015:128-132), entrepreneurial orientation is a comprehensive assessment of entrepreneurship at the business level and is an integral element of a company's success, including development and profitability (Shah and Ahmad, 2019:552). Oduro (2023: 313), citing Alarifi, Robson and Kromidha (2019:138), assert that growth can, therefore, be correlated with a firm's proactivity, innovation, autonomy, risk-taking propensity, competitive aggression, and competitive energy, which hints to an entrepreneurial orientation dimension. In order to facilitate the survival and expansion of small, medium, and micro enterprises (SMMEs), it is imperative for managers and owners to possess certain essential features. This holds true for SMMEs operating in rural regions such as in KwaZulu-Natal.

Companies must be entrepreneurially oriented in order to survive and thrive in the competitive business environment of today (Musawa and Ahmad, 2019:188). Abu-Rumman *et al* (2021:3) in their study, demonstrate that entrepreneurial orientation has a notable beneficial impact on the expansion of SMMEs. It is well acknowledged that SMMEs encounter difficulties that have an impact on their expansion and profitability

and, as a result, limit their capacity to make meaningful contributions to sustainable development. The main obstacles include, among others, poor legislative and regulatory environments, limited access to markets, information, money, and technology (National Planning Commission Report of South Africa, 2017:5).

Nonetheless, it is imperative for small, medium, and micro enterprises (SMMEs) to formulate and execute a strategic plan through active participation in entrepreneurial endeavours, to not only endure but also thrive in specific business scenarios. Investigating this element with persons who operate a business in rural KwaZulu-Natal will, therefore, be crucial. Small businesses with a strong entrepreneurial orientation are those with high levels of creativity, risk-taking, and initiative (Pulka, Ramli and Mohamad, 2021:591). As a result, entrepreneurial orientation is one of the key tools for SMMEs that gives them a foundation for making decisions and choices that could improve the performance of their businesses (Alvarez-Torres, Lopez-Torres and Schiuma, 2019: 3365).

Entrepreneurial orientation has been linked to SMMEs' performance in a number of studies (Karami and Tang, 2019;106; Mantok, *et al.*, 2019:645; Aftab *et al.*, 2022:4; Masa'deh *et al.*, 2018:3122). As a result, SMMEs with a high tendency for innovation, proactiveness, and risk-taking have a higher likelihood to succeed and perform well overall than SMMEs with a low inclination for these traits (Pulka, *et al.*, 2019:591). However, with reference to rural SMMEs, such as those in KwaZulu-Natal, no data or a literature study was available on these characteristics. For the survival and growth of small, medium, and micro enterprises (SMMEs), it is imperative that owners and managers, even those situated in rural areas, should possess an entrepreneurial mindset.

Barmon and Chakraborty (2013:82) assert that the entrepreneurial attitude towards rural development is recognized by Rena (2009) as a catalyst for economic growth and development, specifically in rural regions. The absence of entrepreneurship would result in the loss or squandering of other developmental facets. Nevertheless, the promotion of entrepreneurship in rural areas has the potential to bring about substantial transformations in various aspects, such as the appearance of rural regions, the

alleviation of unemployment and poverty, the reduction of economic inequality, the maximization of rural potential, and the improvement of living standards (Saxena, 2012:1).

Young individuals constitute a substantial proportion of the labour force and population residing in rural regions. Their active involvement in enhancing the socio-economic well-being of rural families and elevating the overall status of rural areas from suboptimal to optimal levels has been identified as pivotal (Mokht, Bagher, and Shabanali, 2013:116). Adriana (2016:792) suggests that the "economic engine" for young people in rural areas is entrepreneurship in SMMEs. Bhuiyan and Ivlevs (2019:627) posit that the implementation of entrepreneurship initiatives targeted at small, micro and medium enterprises (SMMEs) can effectively contribute to the generation of subsistence income for small businesses, while concurrently addressing the issue of retaining young individuals within rural regions.

Aliabadi, Ataei and Movahedi (2018: 39), citing Khodamipour and Shafiei (2013:69), propose that SMMEs in rural areas can generate profits from their operations in the short term while also ensuring the growth of the labour force in the long run. Consequently, it is feasible to utilize small, micro, and medium enterprises (SMMEs) in rural areas as a strategy to achieve local economic objectives, including the generation of employment opportunities, alleviation of poverty, and the enhancement of entrepreneurial capabilities.

### **3.4.2 Entrepreneurial Competencies**

Entrepreneurial competencies are described by Man, Lau and Chan (2002:124) as "a higher-level feature comprising personality traits, abilities, and knowledge, and hence can be considered as the overall ability of the entrepreneur to successfully perform a job position." Aftab *et al.* (2021:4), citing Durkin and Gunn (2016) postulate that entrepreneurial competences encompass traits like the workers' talents, knowledge, and skills to produce high company performance. They are also seen as self-

perceptions, social roles, motivations, and particular characteristics that contribute to a business's competitiveness, development, or growth (Mohamed, Ibrahim and Shah, 2017:51).

Moreover, Mohsin, Halim and Farhana (2017:89) investigated the function of competences in performance. It has been observed that the presence of entrepreneurial talents holds the capacity to enhance the optimal utilization of organizational resources, augment the efficacy of enterprises, and enable them to attain a sustained competitive advantage in the long run, which has been supported by (Ataei *et al.*, 2020:187).

The complexity of entrepreneurship systems necessitates the development of entrepreneurs with a certain set of skills and talents, the most crucial of which are entrepreneurial competences. Considering this prevailing circumstance and the observation that entrepreneurs, specifically those of a younger demographic, play a pivotal role in propelling rural development; it is imperative to carefully consider and enhance these attributes, as doing so can yield substantial implications for the sustainability of rural development (Haase, Lautenschläger, and Rena, 2011:115). Rural youth's desire to launch entrepreneurial SMMEs will be strengthened if they are equipped with entrepreneurial skills (Rena, 2007:3).

Aruwa (2013:1) emphasizes the significance of environmental factors and their impact on the performance of individual entrepreneurs. According to Aruwa (2013:1), aligning the specific requirements of entrepreneurs with the prevailing environmental forces can enhance the likelihood of successful business initiation and subsequent achievements. This suggests a potential relationship between entrepreneurship attitudes and environmental factors in influencing the adoption of modern technologies in the context of rural entrepreneurship development.

### **3.4.3 Entrepreneurial Networks**

According to Aldrich and Zimmer (1986:12), "entrepreneurial networks" are an entrepreneur's close associations with his or her "external actors or outsiders." Supporting this hypothesis, Centeno (2014:19) proposes that the entrepreneurial network encompasses the collaborative formal and informal interactions between the proprietors/managers of small, micro and medium enterprises (SMMEs) and their social, professional, and institutional connections, which facilitate resource acquisition. Das and Goswani (2019:4) claim that by fostering interactions among its members, the entrepreneurial network helps SMMEs access and utilize resources that are located outside of them.

Additionally, it has been contended that partnerships play a crucial role in facilitating the acquisition of valuable information and skills by small, medium, and micro enterprises (SMMEs), hence enabling them to attain competitive advantages and enhance their overall performance (Das and Goswani, 2019:4). Similarly, SMMEs' entrepreneurial networks reduce failure risk and transaction costs. According to McKeever, Anderson, and Jack (2014:454), entrepreneurial activity is a social process embedded in networks of interpersonal relationships, and these social networks support it by aiding entrepreneurs' efforts to launch new company ventures. Any business's beginnings depend heavily on social capital, which is also backed by economic units. Strong social relationships within the framework of a particular locality give people access to additional chances and success when starting new businesses. Additionally, it helps people develop the confidence and vital networks needed to start new businesses.

Hence, if rural SMMEs are to survive and grow, they must locate appropriate and trustworthy networks (Rena, 2007:3). However, it is unclear how rural SMMEs in South Africa, specifically KwaZulu-Natal, participate in networks.

### 3.4.4 Entrepreneurial Attitudes and Beliefs

Numerous academic studies have recognized and provided empirical evidence for the importance of attitudes, both in a general sense and specifically towards entrepreneurship, in elucidating entrepreneurial purpose (Haase, Lautenschläger, and Rena, 2011:115; Hui-Chen, Kuen-Hung and Chen-Yi, 2014:729; Zapkau *et al.*, 2015:640; Valencia-Arias, Montoya and Montoya, 2018:34; Newman *et al.*, 2019: 404; Jena, 2020:3). Indeed, one of the longstanding research inquiries within the scholarly field of entrepreneurship pertains to the enhanced delineation and comprehension of the entrepreneurial personality. This encompasses an examination of the constituent elements of personality and their interplay, which contribute to the heightened prevalence of entrepreneurial conduct throughout the broader populace. (Obschonka and Stuetzer, 2017:203).

According to Newman *et al.* (2019: 403), the concept of entrepreneurial self-efficacy (ESE) refers to an individual's level of confidence in their capacity to successfully do tasks and fulfil roles that lead to entrepreneurial outcomes and is widely acknowledged to play a significant role in influencing the decision of people to pursue entrepreneurial careers and behaviours. Rural entrepreneurs' behaviour and success are significantly influenced by their attitudes and beliefs regarding entrepreneurship according to Rena, (2007:3) and Jena (2020:2). Positive attitudes toward entrepreneurship, combined with beliefs in opportunity recognition, perseverance, self-efficacy, innovation, networking, and appropriate risk-taking, can increase the entrepreneurial success of rural individuals.

Rural entrepreneurs can actualize their potential and contribute to the economic development of their communities if these attitudes and beliefs are fostered through entrepreneurial education, mentorship programmes, and supportive networks (Haase, Lautenschläger, and Rena, 2011:116).

### **3.5 KNOWLEDGE AND UNDERSTANDING OF MODERN TECHNOLOGY USE IN RURAL AREAS**

According to Savira and Fahmi (2020: 2) rural entrepreneurship plays an integral role towards rural development due to the enterprising opportunities it affords; it also creates employment and generates the creation of wealth (Rena, 2007:2; Kamutuezu *et al.*, 2021:2). Economic activities uplift the rural economy, and the emergence of digital technologies can greatly enhance the business activities as information and communications technologies provides information to the rural consumer whilst also stimulating the online engagement of the rural social network.

Individuals and consumers have the ability to go online and research information about the business and share information to their extended network. The adoption of digital technology has faced obstacles in the form of infrastructural and socio-economic issues, despite the numerous advantages and benefits offered by information and communications technologies and mobile phones (Krishnamurthy, 2020:3).

Datareportal (2022) declared that there were 108.6 million mobile connections at the start of 2022 for the South African market, noting that many individuals have two mobile phones which are used as a business or personal device. According to Statista's report in 2022, the number of active internet users in South Africa reached 41.19 million at the beginning of January 2022. Despite this overwhelming number of internet users, the mobile penetration rate for the South African rural consumer still lags.

The determinant to this phenomenon can be attributed to lack of awareness of digital services, lack of electricity, lack of digital skills and data security, lack of trust in online payment methods as well as the high costs associated with purchasing data (Gillwald and Mothobi, 2018:1). Digital transformation cannot enhance and empower rural entrepreneurship without adequate attention given to driving education around the advantages of ICT (Jafari-Sadeghi *et al.*, 2021).

### **3.6 RURAL ENTREPRENEURSHIP AND MODERN TECHNOLOGY**

The world population is at 7.42 billion and counting and 11% of this population count is extremely poor, living below the breadline (World Bank, 2018:1)). The majority of these highly disadvantaged impoverished individuals are primarily situated in the rural regions of Southern Asia and sub-Saharan African nations, with over 78% of them depending on agriculture as their main source of sustenance (United Nations, 2018:1).

Technology has the ability to act as an enabler to bridging the many gaps that exist in the rural areas as well as affording the entrepreneur opportunities to be exposed to these technologies (Bansal, 2014: 473). Digital technologies combined with mobile technology has afforded some small businesses the opportunity to collaborate and engage with customers, otherwise disadvantaged by geography and the unequal physical access to ICT (Reuschke, Madon and Syrett (2022:2).

The growth of social media platforms and the increased accessibility of internet-connected mobile devices have significantly changed the manner in which customers engage with companies (Kumar and Agrawal, 2020:58). The phenomenon of engagement has undergone a transformation into the realm of electronic commerce (E-commerce), whereby numerous individuals are leveraging social media platforms as a means to promote their brand or facilitate the sale of products (Enginkaya and Yilmaz 2014:220; Singh and Singh, 2018:21; Gunawan, Santoso and Yustina, 2022:394).

Townsend *et al.* (2016: 32) and Roberts *et al.* (2017:355) predicated that social media network and mobile technologies are integral for businesses operating in a rural context, however, the issues of poor infrastructure and internet connections are a major drawback to technology adoption. Phillipson *et al.* (2019:232), further contend that rural businesses have a lower digital adoption rate due to the lack of intellectual skills and understanding of how technology works which makes it difficult for rural businesses to access social media networks.

Jayadata (2017:42); Gupta (2019:7023) and Kumar, Ihita, Chaudari (2022:911) in their studies investigating the influence of information and communications technology

(ICT) on rural entrepreneurship in India, identified a notable deficiency in knowledge regarding ICT tools and technology. This deficiency can be attributed to the absence of training resources and societal challenges arising from political dynamics in rural regions.

Blank, Graham and Calvino (2018:83), from their perspective of some rural areas in the United Kingdom, contend that the unequal geographical diffusion of socio-economic constraints of education, age and employment are correlated internet use. This is corroborated by Onituska (2019:1) who noted a similar trend in the rural spheres of Japan.

Vasque and Escamilla (2014:534) in their findings of a study done in Mexico observed that rural communities have a technological gap in terms of knowing how technology and social media applications can help them grow their small business, thereby, increasing the technological divide.

According to Stillman (2020:3), the utilization of mobile phones in Bangladesh has witnessed a surge, with a recorded 190 million mobile users by the conclusion of 2019. However, the persistence of the digital divide can be attributed to inadequate infrastructure and a deficiency in technological proficiency inside numerous rural regions (Hoque 2020:2). From a rural standpoint, it is evident that the multiple roadblocks of inferior digital infrastructure, geographical remoteness and lack of technological knowledge are proponents as to why modern technology has a low level of adoption (Townsend *et al.*, 2016:32 and Phillipson *et al.*, 2019:232).

### **3.7 STATE OF RURAL ENTREPRENEURSHIP IN SOUTH AFRICA WITH REGARDS TO MODERN TECHNOLOGY**

Pal, Zhang and Siyal, (2013:3) proposed that the adoption of information and communication technology practices can be attributed to many factors namely the cost associated with the devices; systems to implement the technologies (Nkosana, 2016:7), inadequate infrastructure as well as lack of technical knowledge (Phillipson *et al.*,

2019:232). Roberts *et al.* (2017:355) further expanded on the low levels of adoption and digital penetration being contingent upon privacy concerns, consumer resistance and a lack of understanding and knowledge in digital technology. Extant literature displays a significant gap in terms of how rural areas in South Africa have adopted and appropriated modern technology and digital transformation.

Rural entrepreneurs often rely on their own social circle of family and friends who use word of mouth marketing to spread awareness of the business. The rural entrepreneur then acts as an evangelist for technology by transferring the skill sets to other members in the area (Rena, 2009:6). The drawback to this initiative could result in negative marketing for the business which could translate into loss of sales which could potentially affect the growth of the business. Ngibe and Lekhanya (2019:6) concur that leveraging technology adoption to bridge the digital divide in rural KwaZulu-Natal could be attained by entrepreneurship education and enhancing their digital skill sets.

### **3.8 FACTORS AFFECTING ENTREPRENEURIAL ACTIVITY AND THE USE OF MODERN TECHNOLOGY IN RURAL AREAS**

Lekhanya (2014:2717) posits that technology adoption is imperative as it provides opportunities for the entrepreneur to engage and operate in the global markets, providing a platform that stimulates growth and innovation for the business, whilst also attaining competitive advantage. The utilization and integration of information and communication technologies significantly influences the overall property and business operations (Giotopoulos, *et al.*, 2017:60); it also makes information about business opportunities easily accessible and contributes to positive interdependence (Yunis, Tarhini, Kassar, 2018: 344).

Whilst information and communication technologies have been the catalyst to advance many industries and businesses, various resource limitations combined with the lack of technological adoption still exists in the small rural business sector (Masood and

Sonntag, 2020:2). Many developing countries experience a noticeable struggle due to a myriad of factors encompassing, dilapidated infrastructure, poor governance systems and lack of education which could be contributing factors to the use of modern technology (Iwu, 2021:74).

Thus, it is imperative to carry out a study of this kind to determine why rural businesses in KwaZulu-Natal are not utilizing or acclimating to the utilization of modern technology as they ought to. The current situation could still present a problem as the adoption of modern technology poses a challenge to emerging rural entrepreneurs and this is discussed below.

### **3.8.1 Lack of infrastructure**

Infrastructure services refers to various government portfolios, including water and electricity and not limited to transport and communication infrastructure, solely (Danga, Chongela and Kaudunde, 2019: 37). Bomani and Derera (2018:153) predicate that rural areas are beset by a multitude of obstacles and poor road networks and communication infrastructure plays an integral role in undermining the initiation and expansion of entrepreneurial endeavours in these regions. The remoteness of certain areas and the lack of proper roads contribute to transport challenges and ease of access for service delivery proponents (Danga *et al*, 2019: 37).

The availability of fast internet and high-speed broadband connections is a necessity for rural economic development according to Henderson (2002:56). However, an efficient communications infrastructure poses a considerable challenge due to the high costs associated with installing last mile connections (Cowie, Townsend and Salemk 2020: 169). Cowie *et al*. (2020: 169) further declare that the topography and remoteness in certain rural areas contribute towards lack of broadband coverage and investment from government in terms of rolling out adequate communications infrastructure. According to Tognisse, Kora and Degila (2021:2) poor communication infrastructure means compromised internet connectivity and mobile technology as

network providers are less likely to deploy in an isolated area with very little return on investment for the technology.

Zarenda (2013:4) declares that The South African Rural Development Plan (2013) acknowledges that infrastructure development is critical towards empowering rural areas, with specific emphasis being placed on ICT as an enabler that will bring about socio-economic change. According to Egbide, Samuel, and Samuel (2013:6), the presence of deficient road networks, unreliable electricity provision, limited access to water, and inadequate communications technology are significant obstacles that hinder the progress and expansion of rural entrepreneurship.

Nkosana, Skinner and Goodier (2016:2) declared that the digital divide is noticeable when comparing ICT usage in the metropolitan cities of Johannesburg, Pretoria and Durban, to underdeveloped rural areas.

### **3.8.2 Financial capability and affordability**

According to Chimucheka (2012:793) access to finance to trade and fund growth is a critical factor in the development of rural entrepreneurs. Fatoki and Garwe (2010:731) concur that a significant barrier contributing to the failure of numerous entrepreneurial endeavours in rural areas is the limited availability of financial resources. Bomani and Derera (2018:153) opine that lack of access to finance poses a real challenge as banks are not keen to provide financing for rural business. Patel and Chavda (2013:34) noted that insufficient forms of collateral further hindered the ability to afford bank products.

From the bank standpoint, granting credit to rural entrepreneurs without adequate collateral poses a huge risk as most businesses operate in an environment that doesn't generate adequate profit to cover the loan or have sustainable business plans (El-Said, Al-Said and Zaki, 2013:5).

Lack of financial acumen and understanding the complexities of financial documents, tax laws and the inability to raise capital creates a dependency on taking out loans from "loan sharks" at exorbitant lending rates or borrowing cash from family and friends

(Ogubazghi and Muturi 2014:633). Ndiaye *et al.* (2018: 270) assert that lack of access to finance due to the inability to produce a viable business plan or insufficient collateral is a common trait that is evident in least developed countries for the rural entrepreneur. Panda (2018:321) agrees that obtaining access to finance is a major constraint towards rural entrepreneurship growth as entrepreneurs depend on financial resources to drive growth and leverage technological innovations.

The primary factor hindering the development of rural businesses is the insufficient availability of financial resources. This assertion is corroborated by Lekhanya (2015:412), who argues that rural entrepreneurs have challenges in accessing credit due to their limited financial knowledge and bureaucratic obstacles.

### **3.8.3 Managerial knowledge and skills**

The Global Entrepreneurship Monitor (GEM 2016:2017:18) reports that one of the critical challenges facing rural entrepreneurial operations can be attributed to the lack of sustainability efforts whilst Moos and Shambo (2018:3) note that this challenge is driven by poor management skills, combined with lack of training and education. Moos and Shambo (2018:3) provide a further literature review which highlights the lack of managerial skills such as business planning.

Kambwale, Chisoro and Karodai (2015:99) assert that there is a lack of proper business training in management functions whilst Cant (2017:110) and Skae (2017:1) mention the lack of business skills as proponents to factors affecting entrepreneurial activity. Lekhanya (2015:414) goes on to add that lack of entrepreneurship education and a weak entrepreneurial culture are further determinants as to why rural entrepreneurship failure is so rife.

In the Ugandan context, Nangoli, Turinawe, Kituyi, Kusemererwa and Jaaza (2013:290) attributed the cause of business failures to the inability to supervise, poor management of family businesses and a distinct lack of business management and entrepreneurship skills. Bushe (2019:10) asserts that the presence of managerial

challenges has emerged as a prominent determinant in the occurrence of business failure within the context of South Africa. This is consistent with the research conducted by Lings (2014:160), which indicated that a significant proportion of enterprises in South Africa experience failure within their initial year (40%), second year (60%), and first decade (90%), due to the rationale of managerial knowledge and skills being a key challenge, impacting the growth of the rural entrepreneurial sector.

### **3.8.4 Perceptions and attitudes towards modern technology**

Kumar (2014:176) posits that information communication technology (ICT) is an all-encompassing term that includes all devices such as phones and laptops as well as technologies and applications that accelerate and amplify how we communicate with each other. Koksai (2019:1) declares that information communications technology is rising exponentially and the worldwide diffusion of ICT through open-source access makes it easier for consumers to have easier access to information, changing the socio-economic lives of individuals.

Morgan-Thomas, Desart and Veloutsou (2020:713) note that the emergence of these digital technologies has proven to be a significant enabler of change that has changed the landscape of how individuals and businesses engage with each other. Chatterjee, Gupta and Upadhyay (2020:2) opine that access to technology and the adoption thereof has the ability to empower emerging rural entrepreneurs in a positive way and spur economic activity in the rural sector. However, the lack of awareness and access to information has been a negative contributing factor to the emerging rural entrepreneur (Chatterjee *et al.*, 2020: 3).

Many rural entrepreneurs lack the fundamental technical know-how and are susceptible to online scams (Fisher, Lea and Evans, 2013:2061) or the necessary infrastructure such as training facilities or high-speed internet coverage (Jayadata, 2017:39). Adoption decisions are further influenced by technology adoption, the

complexity of the technology and the underlying cost associated with technology (Kumar, Engle and Tucker, 2018:448).

The presence of personal communication networks and interconnected social ties within a community is a significant factor in the decision-making process of technology adoption. Research has shown that persons with greater social links to close relatives and friends are more inclined to embrace new technologies (Fahmi and Sari, 2020:2). Existing research indicates that there is a prevailing sense of scepticism, limited understanding, and insufficient financial resources hindering attitudes and perceptions towards digitalization and the adoption of technology (Chatterjee *et al.*, 2020: 3). The absence of appropriate technology has the propensity to greatly reduce the adoption intention for the rural entrepreneur.

### **3.8.5 Marketing skills and the use of modern technology in marketing the business**

Digital marketing has revolutionized traditional marketing practices by implementing new technologies that allow for a more engaged and enhanced interaction with the customer on online platforms such as social media and company websites (Chaffey, 2013:1). In the contemporary day, individuals are extensively engaged with numerous social networks, with Facebook being the foremost platform that enables firms to effectively engage with a vast audience, hence presenting novel marketing prospects (Bala and Verma, 2018: 324). Digital marketing is cost effective and has influenced the buying behaviour of customers as the content displayed and generated is in real time (Pandey, Nayal and Rathore, 2020:1191).

Adopting a digital marketing strategy has changed the marketing landscape for larger businesses; however, it has proven to be a challenge for rural entrepreneurs in South Africa (Lekhanya 2015:37). According to Zondo (2016:221) rural entrepreneurs are constrained due to the limited access to markets, having the appropriate marketing skills and developing relationships with customers. This view is supported by Bomani

and Derera (2018:154) who noted that rural entrepreneurs have limited access to business skills training.

According to Osiri (2013) many rural entrepreneurs' failure to adopt a digital marketing strategy can be attributed to a perceived lack of having the correct marketing skills as well as understanding the technical jargon associated with promoting their business online. Burgess, Sellito, Cox and Buultjens (2015:4313) opine that "the smaller the business is, the lower the adoption rate tends to be", which is corroborated by Chaffey and Ellis-Chadwick (2019:1) who stated that a sound understanding of marketing strategy and paid for digital media technology is a definite requirement when undertaking a digital adoption initiative.

### **3.8.6 Socio-cultural challenges affecting modern technology adoption**

OECD (2001:5) defines the digital divide as "the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard to both their opportunities to access ICTs and to their use of Internet for a wide variety of activities". The United Nations Conference on Trade and Development (UNCTAD) (2019:2) in their report on "Recent Trends in the Digital Economy" noted that the digital divide is widening, especially in developing countries within Africa and South America, where one out of every five people use the internet.

This is in stark contrast to the developed nations of China and the United States, whereby, four out of five people are connected (UNCTAD, 2019:2). According to Reinartz (2016:21) and Vimalkumar, Singh, and Sharma (2021:2), socio-cultural characteristics, including age, gender inequality, language, level of education, socio-economic position, and family contacts, are significant determinants in the adoption of information and communication technology (ICT) technologies.

### **3.8.6.1 Age**

Extant literature in the early era of the digital divide showcased the dichotomy between individuals who used the internet and those who did not (Basu and Chakraborty, 2011:473). Onitsuka, Hidayat and Huang (2018:3), citing Basu and Chakraborty (2011:73) affirm that age as one of the integral factors of the digital divide stems from the rhetoric of older people not willing to use ICT, due to their educational level and lack of knowledge. This view is supported by Barrantes and Vargas (2019:2) who claimed that older adults lack the required skills needed to operate a technological device, which in turn creates exclusion for the elderly from using technology. Barantes and Vargas (2019:4) further contend that older adults face physical limitations in terms of sight and motor functions that limit their ability to navigate a technological device.

### **3.8.6.2 Gender Inequality**

According to the World Bank (2014:1), women continue to have lower literacy rates than men which is a direct consequence of structural and patriarchal norms that are still prevalent in many rural areas. According to Mariscal *et al.* (2019:1) citing statistics from the Global Systems for Mobile Communications (GSMA) (2018:1), conclude that gender inequality remains a key determinant in the adoption of mobile technologies within the low- and middle-income countries.

Mariscal *et al.*, (2019:1) note that India, despite being the second biggest market for mobile phones, only declares a 2% mobile usage rate for women in rural areas. In numerous developing nations, despite the rapid proliferation of mobile phone ownership, a persistent gender bias persists, wherein women exhibit a lower propensity compared to males in utilizing mobile internet services (Chatterjee *et al.*, 2020:2; Vimalkumart, *et al.*, 2021:2; Pashapa and Rivett, 2017:234).

A study conducted on rural women entrepreneurs in Niger by Emeh (2021:21), declared that 61.4 % of adult women are illiterate; this lack of education adversely affects their ability to learn new technology or enquire about possible opportunities that will enable them to grow their business.

### **3.8.6.3 Language**

According to Anari and Sanjarani (2016:145), “translation, involving the transposition of thoughts expressed in one language by one social group into the appropriate expression of another group, entails a process of cultural de-coding, re-coding and encoding”. English is the dominant language for the transmission of information on online platforms and this acts as an impediment to indigenous language speakers who are unable to understand or comprehend the content (Agholor, 2019:50).

Rural areas are traditionally bounded by class and cultural inheritance, which is a barrier when it comes to communicating, as language is an access issue and clashes with local traditions and dialects (Ndebele, 2020:4).

### **3.8.6.4 Level of Education**

Chakanika *et al.* (2012:10) declare that the objective of obtaining education in rural areas is fraught with challenges, such as the long distances that children have to walk, lack of focus on both children and teachers which leads to children dropping out from school, creating further socio-economic impacts on the rural sectors. Park (2017:400) proclaimed that despite technology inclusion being evident in some rural areas, the level of education and skills in understanding how to navigate a mobile device or computer and the respective technology, puts many individuals at a disadvantage. Agholor (2019:50) posit that language is intertwined with the level of literacy and education as many sub-Saharan countries continue to disseminate information and

training material in schools in the English language which is not easily grasped due to the many dialects which are rooted in cultural preferences.

#### **3.8.6.5 Socio -economic status**

As stated by Dutton and Levine (1989:30), socio-economic status is “a composite measure that typically incorporates economic status, measured by income; social status, measured by education; and work status, measured by occupation”. Bornman, (2016: 268); Pasha and Rivett (2017: 233); Sabi *et al.* (2018:1384) assert that income disparity and the socio-economic status of rural inhabitants due to high levels of unemployment and poverty denote a far deeper multi-level digital divide and digital adoption rate. A poor economic base coupled with lack of available opportunities to generate income are determinants to low adoption of digital technologies.

#### **3.8.6.6 Social networks and family contacts**

According to Onitsuka et al. (2018:4), rural networks and engagement of individuals are often smaller due to the sparsely populated areas, and the longer distances between people’s homes, which has a direct impact on the ability to create the bonding and bridging of social capital; this is a necessary requirement in expanding the social network of rural areas (Li, Westlund and Liu, 2019:138).

Networks and family contacts play an essential role in whether technology adoption will be utilized, as the motivation aspect is proportional to the social network or family that the user belonged to (Park, 2017:400; Olatain, 2018:17; Martinez-Dominguez and Mora-Rivera, 2020:3). If social networks and the family construct shies away from using ICT, then the adoption penetration and usage is marginally less.

### 3.9 DEFINING SOCIAL MEDIA AND SOCIAL NETWORKS

Kietzmann *et al.* (2011:241) describe social media as “those interactive web platforms via which individuals and communities share, co-create, discuss and modify user-generated content”. Can and Kaya (2016:486) postulate that the prevalence of mobile devices has given rise to the growth of social media and social networking sites as consumers are able to access the technology instantly. This is also espoused by Kahn, Inman and Verhoef (2018:255) who note that online users are now interconnected and have the ability to engage, co-create and seek information on a product or service instantly via their mobile device.

Hassan, Nadzim and Shiratudding (2015: 263) assert that despite the lack of managerial capabilities, restricted access to finance and competition from larger businesses, rural entrepreneurs can leverage social media to drive marketing capabilities for their small business venture. According to Ainin *et al.* (2015:571-572); Razak and Latip (2016:1) social media presents unique features that has the propensity to enable rural businesses to engage in marketing activities that encompass advertising, sales, promotion and communication with minimal cost to implement. Algharabat *et al.* (2020:2) contend that social media and the relatively inexpensive cost associated with the marketing objectives of selling and advertising, creates a promotional tool that allows for engagement by commenting, sharing and tagging of friends and family to draw attention to a product or service.

Due to the social media engagement and the subsequent sharing of the communication, a product or service is disseminated to a wider audience, thereby, building brand awareness (Muslim *et al.*, 2020). Jain (2021); Dolega, Rowe and Branagan (2021) proclaim that due to the low-cost structure of using social media to promote a business or product, the proclivity of social media marketing has gained traction in the last few years and continues to be a key driver to generating growth and profits.

According to Lekhanya (2018:38), it is proposed that the South African government and private sector should engage in a cooperative endeavour to facilitate the advancement of digitalization in rural entrepreneurship. This objective can be realized

by leveraging social media as a means of promoting and advertising entrepreneurial activities in rural areas. Existing literature reviews indicate that there is a notable disparity in technology adoption rates between rural and urban areas, with rural areas exhibiting lower levels of adoption. This discrepancy is particularly evident in regions with aging populations (Cowie *et al.*, 2020: 169; Fischl *et al.*, 2020:282). According to Pranoto and Lumbantobing (2021:76), rural entrepreneurs can leverage social media to promote their business online, engage and co-create with the consumer, and compete with bigger businesses without having to outlay huge costs associated with brand awareness.

### **3.10 SOCIAL MEDIA AND SOCIAL NETWORKING IN THE SOUTH AFRICAN CONTEXT**

According to WorldWide Worx (2016), social media usage in South Africa has increased dramatically, transcending the age barrier and the urban-rural divide. According to the research by Datareportal (2022), it is said that as of the beginning of 2022, the number of mobile connections in South Africa amounted to 108.6 million, which corresponds to 179.8% of the country's population. Key aspect to this number is that many users make use of two phones, one for business and one for personal use. It is important to acknowledge that a significant portion of the South African population has internet connectivity, primarily through mobile devices, while a considerable number of households still lack access to fixed-line broadband services. Mabinane and Edoun (2018:101; Budhree, Fietkiewicz and Lins (2018:315) concur that the penetration rate of social media adoption continues to grow year on year, despite infrastructure and slow internet connectivity in South Africa.

According to Talkwalker (2020), the majority of social media users in South Africa are in the 25-34 age bracket, comprising 47.9% of the total. This is closely followed by the 18-24-year-old age group, which represents 40.4% of social media users. According to Talkwalker's report in 2020, WhatsApp emerged as the most preferred social media network with a usage rate of 89%. It was closely followed by YouTube,

which garnered a usage rate of 87%, and Facebook, which secured the third position with a usage rate of 83%.

Chinje and Chinomona (2015:796) and Hajaran *et al.* (2017:283) propose that the ubiquitous use of social media and the propensity of real time sharing that these social networking sites offer to the consumer has positioned it as a powerful tool for knowledge sharing and dissemination. South African organisations and businesses use social media as a marketing tool to drive brand awareness and build an online relationship with their consumers (Alawan, 2018:65). From an individual standpoint, a considerable number of South African individuals utilize social media platforms to actively participate and communicate with their acquaintances and relatives, as well as to generate and distribute various forms of digital material (Rhyne, Chinyamurindi and Cilliers, 2019:2).

### **3.11 SOCIAL MEDIA AND SOCIAL NETWORKS IN RURAL KWAZULU-NATAL PROVINCE**

Lekhanya (2013:3) declared that social networks play an integral role in communicating information about a small business and its practices in the absence of effective marketing practices that are not available for the rural entrepreneur. Social media and social networking activities are instrumental for rural businesses to transcend the issues of geographical remoteness and infrastructure (Townsend *et al.*, 2016:32; Roberts *et al.*, 2017:355). According to Lekhanya (2013:5), the limited comprehension of diverse cultural elements in rural KwaZulu-Natal acts as a barrier to the dissemination and acceptance of modern technologies, such as social media networking. These technologies have the potential to facilitate marketing, business-to-business networking, and the distribution of commercial goods.

Given, Winkler and Hopps-Wallis (2017:1) posit that social media technologies and platforms are espoused as beneficial tools for decreasing the social isolation and connection for many individuals and business, however those residing in rural regions

exhibit a lower propensity to engage with social media platforms (Onitsuka, 2019:1) due to poor digital infrastructure and lack of broadband connectivity (Townsend *et al.*, 2016:34; Philip *et al.*, 2017:387 and Lekhanya 2018:38).

Lekhanya (2013:3); Phillipson *et al.* (2019:232) and Tiwasing (2021:6) note that lack of digital and technological skills, a generalized illiteracy level plus lower household income combined with an aging population all contribute to a general unwillingness to use social media in the rural areas. Lekhanya (2018:45) proclaimed that despite the digital exclusion and cultural divide that is prevalent and centred around word of mouth, social stigma, peer pressure and religious beliefs, social media and social networks have the ability to increase the digital footprint in terms of new communications and marketing technologies to drive penetration and adoption in rural KZN.

### **3.12 MOBILE PHONES**

Digital innovation and transformation have grown radically in the last decade, leading to an increasing use of digital technologies which has created the potential for various opportunities that spearhead entrepreneurship (Bream, Viardot and Nylund, 2021: 2; Jafari-Sadeghi, Garcia-Perez, Candelo and Couturier, 2021: 100). According to Bai, Quayson and Sarkis (2021:1991), the onset of COVID-19 has further impacted the way businesses operate, leading to many established businesses investing in digital technologies, with many governments also encouraging the adoption of digital innovation and entrepreneurship (Modgil, Dwiked, Rana, Gupta and Kamble 2022:1).

Qureshi (2015: 511) asserted that information and communications technology (ICT) is a necessary tool and is imperative for national development to enable growth and create employment and the informal economy can leverage ICT using mobile phones. Savira and Fahmi (2020: 2) and Moyo and Tengeh (2021:4) assert that advances in ICT , and the proliferation of mobile phones ensures the accessibility of information

which greatly influences the ability of the rural entrepreneur to identify new opportunities and innovations.

Rural entrepreneurs have the leverage needed to take advantage of these opportunities and innovations, in terms of enhancing their abilities to access a wider market audience. Kamutuezu, Winschiers-Theophilus and Peters (2021:2) further contend that digitalization through mobile phone technology has the potential to bridge the digital divide that currently exists due to geographical remoteness and infrastructure challenges.

### **3.13 MODERN TECHNOLOGY ADOPTION CHALLENGES**

The focus on the prevalence of digitalization in rural areas has mainly been studied from a standpoint on the benefits of ICT and internet connectivity (Roberts *et al.*, 2017: 372; Salemink, Strijker and Bosworth, 2017:360). The aspect of a digitally pervasive society has gained traction in rural areas with broadband and smart-phone connections; however, the usability of digital applications has been lagging in rural areas. Desta (2018:1); Sept (2020: 195) and Salemink *et al.* (2017: 361) posit that technology adoption is a key determinant towards digital inclusion, and the narrative is now geared towards the different usage patterns in order for digital connectivity to exert a significant influence. Extant literature has focused on the digital divide prevalent in rural areas, which is attributed to the lack of high-speed internet infrastructure and reliable connections (Townsend *et al.*, 2013:581), confounded by the digital illiteracy of an aging rural population (Salemink *et al.*, 2017).

Robinson *et al.* (2020:1) declare that the emergence of technology should automatically translate into adoption; however, the internet is a complex and daunting platform to understand and navigate. Nemer (2015:1), in his seminal research on the factors influencing the prevalent digital inequality in the rural areas, has proposed that the structural constraints of residence, age and education are the main challenges that are evident in rural areas; this is corroborated by Ragneda and Mutsvairo (2018:1)

who declared that the inequality of usage attributed to lack of digital literacy skills creates the digital exclusion gap that is prominent in rural areas.

Drabowicz (2017: 62) elucidated that the primary use of digital technologies in a rural setting is geared towards entertainment and social activities, creating a digital exclusion that distances people from having access to capital enhancing activities. Digital exclusion is particularly evident in the older adults, who lack the technical knowledge required to navigate the internet or the funds needed to repair a damaged phone or upgrade an application for the phone (Francis *et al.*, 2018: 1169).

Digital exclusion presents a significant challenge for the rural sector and reforms that can alleviate certain discriminatory factors can be achieved through digital skills literacy and education.

### **3.14 IMPLICATIONS OF THE INFLUENCE OF MODERN TECHNOLOGY IN RURAL ENTREPRENEURSHIP**

The advent of the fourth industrial revolution and the anticipated technological advancement was geared towards promoting and enhancing productivity, creating efficiencies, and further creating new business models and products which are necessary for long-term economic growth (Kurt, 2019: 596). In both developed and emerging economies, the information and communication technology industry has shown to be a crucial determining factor, demanding that governments engage and support the transformation of this sector in areas encompassing cyber security, data protection, infrastructure and education (Sutherland, 2019: 234; Oyebanjo and Tengeh, 2021:888 and Arubela and Jere, 2022:2).

According to the United Nations Development Programme (2020:1), technological progress is greatly needed as it will drive sustainable development and find long term solutions to promote economic growth. According to the findings of Statista's (2022) statistical research, there were 41.19 million active internet users in South Africa as of January 2022, however despite this high adoption of ICT there exists a huge disparity

in terms of how individuals in urban areas access the internet compared to individuals in the rural areas.

Chatterjee *et al.* (2020:2) surmise that there is a wealth of material on the influence of internet and communication technology, yet there are divergent opinions on how adopting ICT will affect society. Urvashi *et al.* (2017:1) opine that poorer communities generally lack the will to explore and adopt digital technologies due to their socio-economic circumstances, confounded by high internet costs and lack of infrastructure. According to Mamba and Isabirye (2015:137), information and communication technology initiatives in rural townships denote a high failure rate due to poor management, lack of user adoption and poorly formulated policies. Urvashi *et al.* (2017:2) further contend that lack of digital skills and digital education plays an integral aspect towards non-adoption of digital technologies in the rural sectors.

During their investigation on the digital issues faced by people living in rural areas of South Africa, Arubela and Jere (2022:2) revealed that the vast majority of people living in rural areas are not proficient in the use of technology and the primary use of mobile phones is to make voice calls, send SMS, and access social media sites. Morris, Morris, and Bowen (2022: 370) supported this theory, noting that despite certain pockets of rural areas having access to adequate infrastructure and technology devices, this is not utilized to its full capacity due to lack of digital skills and many devices lacking appropriate software.

Netshirando, Munyoka and Kadyamatuba (2020:701) and Arubela and Jere (2022:2) assert that digital transformation is still in a nascent phase in rural areas, and it is prudent to note that technological and infrastructure challenges are not limited to problems experienced by rural areas as a whole; the social component plays an important part in determining how individuals make use of these instruments, the patterns of engagement and the feasibility of the perceived value this engagement offers them. Bowen and Morris (2019:77) indicate that rural entrepreneurship strategies and the ability to diversify to extended markets is incumbent on the adoption of modern technology.

### **3.15 SUMMARY**

In this chapter, the theoretical view of technology adoption was discussed, and the conceptual underpinnings of entrepreneurial orientation were underlined. The literature analysis in this chapter presented compelling evidence that, with particular reference to Southern KwaZulu-Natal, the adoption of modern technologies still faces significant obstacles in rural areas. As a result, recommendations for tactics and strategies to help rural entrepreneurs enhance their chances of survival and growth will be based on the information acquired and evaluated from the literature study in this chapter. The research methodology, research design, and data collection techniques employed in this study are all covered in the next chapter.

## CHAPTER FOUR: RESEARCH METHODOLOGY

### 4.1 INTRODUCTION

The purpose of this chapter is to discuss how the primary data was collected and analysed. This chapter's specific sections cover research design, questionnaire design, various data analyses, the validity and reliability of the methods used, potential errors that might occur, and how these errors were fixed. It also addresses the validity and reliability of the data used in the methods chosen.

Moreover, the methods, procedures, and instruments used for data analysis and interpretation are addressed. The following primary and secondary research objectives were met by doing an in-depth review of the relevant literature and utilizing a quantitative approach that included the administration of questionnaires. Each aim was supported with questions that were pertinent to the primary questionnaire.

**Primary Objective:** The aim of the study was to investigate the influence of using modern technology among emerging entrepreneurs in the rural KwaZulu-Natal Province.

**Secondary Objective:**

Sub-objective 1: To examine the use of modern technology among emerging entrepreneurs in the rural KwaZulu -Natal Province;

Sub-objective 2: To assess the implications of modern technology on emerging entrepreneurs in the rural KwaZulu-Natal Province;

Sub-objective 3: To evaluate the factors contributing to the use of modern technology among emerging entrepreneurs in the rural KwaZulu- Natal Province;

Sub-objective 4: To ascertain the characteristics such as attitudes and opinions of the emerging entrepreneur towards using modern technology in the rural KwaZulu--Natal Province; and

Sub-objective 5: To evaluate the awareness and knowledge about the advantages of modern technology being used as a business tool among emerging rural entrepreneurs in the rural KwaZulu-Natal Province

## **4.2 RESEARCH DESIGN**

According to Creswell (2014: 12); Leavy (2017:8); (Sileyew, 2019:28), the research design is a strategic blueprint that interprets the analysed data in order to offer sufficient findings and conclusions from the research. This enables the researcher to make appropriate suggestions or inferences based on the study. In other words, the research design provides sufficient findings and conclusions from the research. In the case of this research study, the research design chosen was based on its capacity to respond to the research questions and for its capacity to convert research issues into useable data for analysis that could be utilized to bring the research questions to a conclusion.

According to Leedy and Ormrod (2010:179), quantitative research requires either determining the characteristics of observable events or, through descriptive research, examining a situation as it is. The alternative to quantitative research is descriptive research. It does not include making any changes to the condition that is the focus of the research, nor is it meant to establish any cause-and-effect relationships between the variables.

This section describes the methodology and procedures used to conduct the research for this study. This study's objectives were pursued using a quantitative research methodology and a non-probability, convenience, sampling technique was used with a

closed-ended questionnaire as the primary data collection tool. A detailed closed-ended questionnaire was used as the data collection instrument. SPSS (version 28.0) was used for data analysis in order to calculate frequencies, averages, and other statistical computations that was pertinent to this study. This study was limited to all businesses who were on the Small Enterprise Development Agency (SEDA) system and who operated in the township and rural areas of KwaZulu-Natal. The target population for this study comprised of 384 SMME owners/managers operating in the selected areas of the Ethekewini region (124 Umlazi), (100 KwaMashu), (80 Ndwede), (80 Verulam).

#### **4.3 RESEARCH METHOD**

Kumar (2014:22) and Rovai, Baker and Ponton (2014:3) postulates that there are three categories of research design: quantitative, qualitative, and mixed method approach. The researcher must determine the optimal research design based on the type of study and the relationships between variables. Quantitative research was chosen due to its inherent capacity to verify the objectives' hypotheses by analyzing the relationships between variables (Creswell, 2014:04). These characteristics were assessed statistically and evaluated using a questionnaire to determine the influence of modern technology on emerging entrepreneurs in rural KwaZulu- Natal (KZN).

Additionally, this method was found suitable for examining the large sample size of 384 SMME owners and managers in KwaZulu-Natal, which was thought to be important for establishing reliable results but would have been difficult had qualitative approaches been used. A different strategy, such as a qualitative research method, would not have been acceptable for this study because it is unable to evaluate relationships between the particular study variables and give statistical tests that establish study hypotheses. As a result of these limitations, the adoption of an alternative approach, such as the latter, would not have been appropriate. Additionally,

utilizing an alternative strategy to aim for the same study sample size would not have been possible.

#### **4.3.1 Quantitative Research**

Quantitative research is typically thought of as an investigative approach that employs analysis. Quantitative researchers consider the world as existing outside of themselves and believe that there is an objective reality that exists independent of any observations, as stated by Rovai *et al.* (2014:4). The information gathered is the product of empirical tests and observations, and these techniques usually have closed-ended responses and demand a lot of effort and planning (Brannen, 2016:04; Asenahabi, 2019:79). A quantitative research strategy, taken more broadly, is a style of empirical research that focuses on a social issue; in relation to this study it was to determine the influence of modern technology on emerging entrepreneurs in rural KwaZulu- Natal (KZN).

It entails evaluating and determining whether a theory explains or predicts the phenomenon of interest by analysing numerically measured variables and conducting statistical analysis on them (Wilson, 2019:1). According to Mellinger and Hanson (2020:175), this method is a potent and crucial instrument that can assist the researcher in testing the study's assumptions and subsequently forming reliable generalizations about the parent population. This is because it is based on an established theory, in which hypotheses are produced and then tested in order to demonstrate or disprove any probable correlations or linkages (Asenahabi, 2019:79).

Quantitative methods, like other strategies, entail gathering, analysing, interpreting, and documenting study results and this approach was chosen as the best fit for the study based on its scientific objectivity and justification (McLeod, 2017:1), as it significantly answered the study's aims. The factors chosen from the literature study that served as the foundation for the questionnaire were also tested using this methodology.

#### 4.4 TARGET POPULATION

According to Polit and Hungler (2004:290), referenced by Marwat, Zia-ul-Islam, and Khattak (2016:288), "population" is an amalgamation or totality of items or people who share similar traits or specifications and belong to a particular group. According to Hair *et al.* (2011: 165) and Bajpai (2010: 96), the entire group of items or components pertinent to the study project constitutes the target population. Target population is described by Krieger (2012: 636) and (Rahi, 2017:3) as dynamic individuals made up of intrinsic relationships that exist close together and allow for casual inference to be made that has meaning.

According to Oribhabor and Anyanwu (2019:48) and Jha (2014:183), these persons or groups of people have some distinctive qualities that the researcher finds interesting and from which significant conclusions might be inferred. Privitera (2018: 31) and Babbie (2017: 202), further contend that the identification of the population is crucial to a research study because it enables researchers to intensively study any social phenomenon that is of interest and considered to be a problem or challenge for that population by means of identifying an appropriate sample of this population in the hope of finding solutions that can be ideal for generalization to the entire population.

It is crucial to remember that due to constraints like time, money, or accessibility, it is not always practicable or viable to investigate the entire target population. The target population for this study consisted of 384 SMME owners and managers operating in KwaZulu-Natal, in the selected areas of the eThekweni region (124: Umlazi), (100: KwaMashu), (80: Ndwede), (80: Verulam). These districts were chosen as a good representation of where locals own more companies.

The SEDA (2016) report also included some extremely helpful data that was considered for this investigation. The figure below shows the location and relative size of the eThekweni Metropolitan Municipality.

**Figure 4.1 Geographical location of eThekweni Municipality**



Source: Adapted from the EtheKwini Website (2020:1)

#### 4.5 SAMPLING

According to Bougie and Sekaran (2019: 225), sampling is the methodological procedure of carefully choosing an adequate number of appropriate elements from a given population. This selection allows for an in-depth analysis of the sample and a comprehensive understanding of its properties or characteristics, which can then be extrapolated to the entire population. Sampling from the research population becomes imperative when the size of the population precludes a comprehensive census, thereby, enabling the execution of an efficacious study. According to previous research conducted by Andrade (2020:102) and Oribhabor and Anyanwu (2019:48), it is recommended that a sufficient proportion of the population be included in a study to ensure its effectiveness and enhance the credibility of its findings, as this would facilitate the reliable generalization of results.

The significance of selecting an appropriate sample size is exemplified by the necessity of obtaining an optimal sample to minimize the costs associated with sampling error.

According to Salkind (2010:1178), it is crucial to emphasize the importance of selecting an adequate sample size, as an insufficient sample size fails to accurately represent the population. The occurrence of a Type I mistake, which is characterized by the wrong rejection of a particular finding that should have been accepted (Sekaran and Bougie, 2016:269), can be attributed to an insufficient sample size. According to Sekaran and Bougie (2016:69) and Andrade (2020:102), it is argued that an extremely large sample size may not be desirable since it can increase the likelihood of committing a type II error, wherein a conclusion is accepted when it should be rejected.

According to Saunders *et al.* (2015:272) and Sekaran *et al.* (2016:240), it is recognized that there exist two primary categories of sampling methods, namely probability sampling and non-probability sampling. Alvi (2016:12) defines probability sampling as a sampling technique where each member of the population has a known non-zero probability of being selected. Non-probability sampling refers to a sampling method where the selection of sample units is dependent on convenience or subjective assessment (Alvi, 2016:13).

In this research, the sample for the study employed quota sampling, a non-probability sampling technique, to fulfil the research objectives. This approach is characterized by its cost-effectiveness and time efficiency, rendering it a highly suitable option. The owners and managers of SMMEs in rural KwaZulu-Natal made up the sample and this approach was chosen since probability sampling could not be used because there was an insufficient sampling frame available for the population. This is a result of the fluctuating numbers of SMMEs that are registered in these particular areas.

Therefore, the use of quota sampling proved highly beneficial. As a result of not requiring a sample frame or the stringent use of random sampling procedures, quota sampling was also quicker and simpler to complete. This sampling technique offered an opportunity to investigate various aspects related to business characteristics in rural areas, including the entrepreneurial traits and attitudes exhibited by rural entrepreneurs; the formation of rural entrepreneurial orientation; the influence of external and internal environmental factors; the presence of institutional and social barriers, and the availability of entrepreneurial and network resources.

### **4.5.1 Sampling Size**

In quantitative research, the size of a sample and the method used to choose the sample have an impact on how well a researcher can extrapolate sample statistics from the target population. It should be noted that figures on the number of SMMEs currently operating within the eThekweni Metropolitan Municipality are scarcely available. According to Taderhoost (2017:237), the proper margin of error to employ is 5% and a confidence level of 95% (where  $Z=1.96$ ) for the sample size to be accurate and representative of the target population.

The sample size was determined using an online sample size calculator (<https://surveysystem.com/sscalc.htm>), which produced a recommended sample size of 384 individuals, with 384 being deemed sufficient for the study's objectives.

According to the data analysis carried out by the Small Enterprise Development Agency (SEDA) for the third quarter of 2022, comprehensive information has been provided regarding the overall count of Small, Medium, and Micro Enterprises (SMMEs) in the nation of South Africa. In Table 4.1, the data presented illustrates the aggregate count of small, medium, and micro enterprises (SMMEs) throughout several provinces within the country. Specifically, the KwaZulu-Natal Province is indicated to have a total of 375 209 registered SMMEs.

**Table 4.1: SMMEs by Province**

Province	2021Q3		2022Q2		2022Q3		Quarterly change		Yearly change	
	Number	Distrib.	Number	Distrib.	Number	Distrib.	Number	%	Number	%
Western Cape	260 207	10.80%	261 274	10.30%	312 269	11.60%	50 995	19.50%	52 062	20.00%
Eastern Cape	172 333	7.20%	184 322	7.30%	196 136	7.30%	11 815	6.40%	23 803	13.80%
Northern Cape	19 129	0.80%	23 980	0.90%	30 761	1.10%	6 782	28.30%	11 632	60.80%
Free State	123 269	5.10%	128 095	5.10%	125 152	4.70%	-2 944	-2.30%	1 882	1.50%
KwaZulu-Natal	392 283	16.30%	344 681	13.60%	375 209	14.00%	30 528	8.90%	-17 074	-4.40%
Northwest	125 790	5.20%	140 285	5.50%	129 513	4.80%	-10 772	-7.70%	3 723	3.00%
Gauteng	917 043	38.10%	985 864	38.90%	1 005 288	37.50%	19 424	2.00%	88 245	9.60%
Mpumalanga	194 831	8.10%	190 588	7.50%	225 368	8.40%	34 780	18.20%	30 537	15.70%
Limpopo	199 680	8.30%	276 150	10.90%	283 907	10.60%	7 756	2.80%	84 227	42.20%
<b>Total</b>	<b>2 404 564</b>	<b>100.00%</b>	<b>2 535 239</b>	<b>100.00%</b>	<b>2 683 602</b>	<b>100.00%</b>	<b>148 364</b>	<b>5.90%</b>	<b>279 038</b>	<b>11.60%</b>

Source: (SEDA, 2022:19)

**Table 4.2: SMMEs by Province and formal/informal sector**

Province	2021Q3			2022Q3			Yearly change (%)		
	Formal	Informal	Agric+	Formal	Informal	Agric+	Formal	Informal	Agric+
Western Cape	54.40%	39.00%	6.70%	56.20%	40.90%	2.90%	24.10%	25.70%	-47.10%
Eastern Cape	19.20%	78.30%	2.40%	16.10%	79.10%	4.90%	-4.80%	14.80%	127.00%
Northern Cape	52.60%	37.10%	10.30%	47.90%	36.40%	15.70%	46.40%	57.60%	146.60%
Free State	23.30%	66.20%	10.50%	20.50%	71.90%	7.50%	-10.50%	10.30%	-27.10%
KwaZulu-Natal	22.30%	74.40%	3.30%	28.20%	66.80%	4.90%	21.10%	-14.00%	41.00%
Northwest	17.00%	77.70%	5.30%	14.50%	83.00%	2.50%	-12.40%	10.00%	-51.30%
Gauteng	34.40%	64.00%	1.60%	34.30%	63.70%	2.00%	9.10%	9.10%	40.60%
Mpumalanga	11.90%	85.70%	2.40%	19.30%	76.90%	3.90%	86.70%	3.80%	84.70%
Limpopo	8.40%	86.80%	4.90%	11.60%	82.90%	5.60%	96.10%	35.80%	63.50%
<b>Total</b>	<b>28.20%</b>	<b>68.30%</b>	<b>3.50%</b>	<b>29.50%</b>	<b>66.80%</b>	<b>3.70%</b>	<b>17.00%</b>	<b>9.10%</b>	<b>17.10%</b>

Source: (SEDA, 2022:20)

The diagram presented in Table 4.2 illustrates the distribution of Small, Medium, and Micro Enterprises (SMMEs) throughout different provinces, categorized by their classification as either operating within the formal or informal sector. The province of

KwaZulu-Natal exhibits the sole instance of a decline in the quantity of informal small, micro, and medium enterprises (SMMEs) among all provinces.

**Table 4.3: SMMEs by Province and industry**

	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo Total	
Agriculture	3 063	8 918	4 838	9 418	12 164	2 413	10 894	6 287	13 828	71 824
Mining	0	0	477	0	0	0	931	0	956	2 365
Manufacturing	36 665	23 084	3 081	7 273	29 047	3 424	71 291	22 706	19 683	216 255
Elec. gas & water	0	0	0	0	0	0	632	0	1 329	1 961
Construction	38 198	20 903	6 163	14 412	72 026	17 711	141 048	32 093	44 355	386 910
Trade & accom.	101 410	87 199	12 082	52 466	124 304	70 544	376 959	89 684	136 347	1 050 996
Transp & commu.	16 917	20 844	453	6 617	30 603	8 400	90 310	13 153	18 866	206 162
Fin. & bus. services	67 534	11 460	1 068	11 669	39 391	11 318	152 339	17 633	13 359	325 771
Community	42 396	23 074	2 599	23 296	60 351	14 892	151 565	41 404	33 124	392 701
Private households	6 085	654	0	0	6 289	809	9 319	2 409	2 059	27 624
<b>Total</b>	<b>312 269</b>	<b>196 136</b>	<b>30 761</b>	<b>125 152</b>	<b>374 174</b>	<b>129 513</b>	<b>1 005 288</b>	<b>225 368</b>	<b>283 906</b>	<b>2 682 568</b>

Source: (SEDA, 2022:21)

*Adapted from: SMME Quarterly 2022-Q3 (005).pdf (seda.org.za)*

The diagram depicted in Table 4.3 denote that the principal sectors of economic activity consist of construction, trade and accommodation, finance and business services, and community services in South Africa. The third quarter of 2022 exhibits a significant growth in these four areas as well.

**Table 4.4: Quota Control Characteristics of the sample for KwaZulu -Natal rural areas**

<b>Length of Ownership</b>		
<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
1 - 5	258	67.2
6 - 10	105	27.3
11 - 15	16	4.2
16 - 20	3	0.8
21 - 25	2	0.5
<b>Total</b>	<b>384</b>	<b>100.0</b>
<b>Industry Sector</b>		
<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Hair Salon / Barbershop/Beauty Parlour	61	15.9
Food and Beverage	57	14.8
Spaza Shop Owner	56	14.6
Transport and Communication	35	9.1
Construction	27	7
Car Wash	25	6.5
Trade and Accommodation	23	6
Auto Mechanic	19	4.9
Farm Produce	17	4.4
Other	64	16.7
<b>Total</b>	<b>384</b>	<b>100</b>

Source: Primary Data

#### **4.6 DATA COLLECTION INSTRUMENTS**

Data collection instruments play a crucial role in the research process as they establish the analytical groundwork for investigating and addressing a particular research problem (Moyo, 2017:285). Numerous studies collect data using instruments like questionnaires, interviews, and observation. Sharma and Kumar (2022:1) posit that research integrity requires precise data collection, regardless of how data are defined, either through quantitative or qualitative methods or a mixed method approach.

The selection of a quantitative research approach was determined to be the most optimal strategy for examining the factors identified after a thorough review of the literature. This approach guided the creation of the questionnaire. For the collection of primary data for this study, a structured questionnaire comprising of close ended questions was used. The questionnaire was designed to determine the most pertinent facts regarding the influence of modern technology on emerging entrepreneurs in rural KwaZulu-Natal. The questionnaires were made accessible in two languages, namely English and isiZulu. This was achieved by a process of translation from English to isiZulu, followed by a further translation back into English, with the aim of ensuring the accuracy of the content.

#### **4.6.1 Questionnaire**

According to Sadan (2017:60), via effective preparation, questionnaires have the potential to yield valuable data, achieve high response rates, and ensure anonymity. The provision of anonymity in questionnaires fosters more honest and candid responses compared to interviews, hence mitigating potential biases. According to Boparai, Singh, and Kathuria (2018:210), questionnaires are widely used in research, nevertheless, the process of constructing a questionnaire to yield reliable and useful data, as well as achieving a high response rate, is more complex than it may initially seem. This is due to the fact that questionnaires must explicitly address the research questions, research objectives, and aims of the study because every question on the questionnaire has an impact on how the study will turn out (Boparai *et al.*, 2018:210).

According to Johnson *et al.* (2018:118), it is important to be mindful of these concerns as disregarding them may negatively influence the participants' response to the questionnaire, hence potentially compromising the validity of the findings. As a result, it is critical that researchers are aware of the precise questions to ask, how to ask them, and how to assess their relevance to the study (Brace, 2018:10). Respondents can be gathered anonymously using research questionnaires, and the questionnaires allow for the collection of a significant amount of raw data (Johnson *et al.*, 2018:119).

In this study, the questionnaire was accompanied by a covering letter that gave the respondents an overview of the study. Respondents were sent a letter with information about the study, and their informed consent was sought before the respondents could complete the questionnaire. In addition, a research assistant was recruited to translate English into iSizulu and to assist the researcher in administering the questionnaires and providing clarity on the questions to the respondents. The study questionnaire was meticulously designed to ensure that it adhered to rigorous norms and criteria, with the aim of enhancing the data collection process for subsequent analysis. This action was undertaken to enhance the efficacy of the questionnaire. The aforementioned action was undertaken with the aim of enhancing the effectiveness of the questionnaire in fulfilling its intended objective.

#### **4.6.2 Design of the questionnaire**

It is the job of the researcher to ensure that the questionnaire is constructed in an efficient manner to enable the respondents to fulfil their responsibilities in an appropriate manner (Brace 2018:10). The questionnaire was created after a thorough review of the relevant literature on the influence of modern technology on emerging entrepreneurs in rural KwaZulu-Natal. The questionnaire had sections labelled A and B for respondents to fill out. The information requested in Section A was demographic. The purpose of this phase was to gain an understanding of the characteristics of the population and to draw statistical conclusions that would assist the researcher in comprehending the study's hypotheses and objectives and provide answers to those questions. The researcher was able to determine through this part whether the respondents' levels of education were sufficient for them to comprehend the impact that modern technology has had on emerging SMME's in rural KwaZulu-Natal.

The information requested in Section B focused on the research variables. This section was developed in accordance with the aims and objectives, research questions, and literature review that formed the basis of this study. According to Antwi and Hamza (2015:221), researchers that use quantitative methods start by narrowing their focus to

one or a few variables they want to investigate, and then they gather data that is solely relevant to those variables.

A great deal of consideration is given to the validity and dependability of the measurement equipment as several strategies for measuring each variable are uncovered, produced, and standardized as espoused by (Nardi, 2018:67). Validity and dependability are also key concerns. The questionnaires were structured using a Likert scale which is used to evaluate how strongly respondents concur or disagree with statements on a five-point scale with the following anchors: agree, strongly agree, neutral, disagree, and strongly disagree. The questionnaire format is provided as Appendix C.

#### **4.7 DISSEMINATION OF THE QUESTIONNAIRE**

Phellas, Bloch and Seale (2011:184) assert that hand-delivered research questionnaires have the advantage of gathering a bigger portion of information due to the direct interaction between fieldworkers and study participants. Additionally, any questions-related uncertainties can be resolved quickly (Phellas *et al.*, 2011:185).

In order to correctly administer the questionnaire for this study, there were a total of four distinct procedures that needed to be followed. A cover letter, which is included as Appendix A, was composed in English, and signed by the researcher as the initial step in the process. It describes the reason for the study and informed the respondent that Durban University of Technology gave authorization for the investigation to be carried out (Appendix B). The second phase involved putting together the package in preparation for its release to the sample population. Each envelope contained a questionnaire, an accompanying cover letter, and a copy of the letter granting authorization to carry out the research. The third phase in the process consisted of distributing the questionnaires to the individual respondents. In the fourth step, the questionnaires that were completed by respondents, were collected. There was a total of 384 questionnaires distributed, and there was a response rate of 100%.

Questionnaires were e-mailed and hand delivered to each respondent and each respondent was given an explanation on the reason for the data collection. In certain

instances, the questionnaires were left with the respondent and collected later, as they wanted more time to review the questions. This proved to be a costly exercise and much time wasted as the research assistant and researcher had to make many trips to the respondents to collect the completed questionnaires. The entire data collection process took four months to complete.

#### **4.8 PILOT TESTING THE QUESTIONNAIRRE**

It is recommended by Aithal and Aithal, (2020:6) to do a pilot test on a research questionnaire before putting it into use to collect data for a study. A pilot study refers to a reduced-scale iteration of a bigger study or a preliminary trial undertaken prior to the comprehensive investigation. This study is often known as a "feasibility" study. Finding ambiguous or unclear questions in a questionnaire is another useful outcome of a pilot research (In, 2017:601). Therefore, the pilot study may be useful for assessing the practicability of research instruments or data collection tools such as questionnaires, interview schedules, or other testing instruments, as well as the practicability of the research process itself, according to Phellas *et al.* (2018: 197). This can be achieved by conducting a comparative analysis between the findings of the pilot study and the outcomes of the comprehensive research effort.

When it was time to choose participants for both the pilot study and the actual intervention, the researcher utilized the same criteria. In order to determine whether the questions were straightforward and easy to understand, as well as whether the necessary adjustments had been made, the questionnaires were distributed around the eThekweni municipality and piloted with 25 participants.

Purposive sampling was used in the pilot project because it was crucial to collect input from respondents who operated SMME businesses in rural KwaZulu-Natal and were keen to take part in the research. The pilot study was carried out to examine the difficulties encountered, assess the questionnaire's points of clarity, estimate the time needed to complete it, and examine other logistical issues. Despite some challenges,

every participant successfully completed the quantitative questionnaire. There was no requirement for the questionnaire to be altered in any way. It should be emphasized that the 25 individuals chosen for the pilot study were not included the 384 respondents chosen for the main study.

#### **4.9 DATA ANALYSIS**

Data analysis refers to the scientific procedures used by researchers to interpret the unprocessed data. Seale (2012:317) postulates that research data must first be coded and updated before being analysed, and this is supported by Albers (2017:217) proclaiming that before data can be evaluated, it must be edited and reviewed for completeness, consistency, and the degree of correctness of the respondents' responses.

After completing the field survey, the researcher was able to determine various data analysis methods that, when applied, would make it easier to understand the findings of the study. These methods were validated by a number of different analytical tests. Statistics are methods that are used to compile, categorize, tabulate, and summarize numerical data in order to infer some meaning or information posited from the data (Albers, 2017:217).

The application of statistics is usually always necessary in order to conduct an analysis of quantitative data. Silverman (2016:423) proclaims that the selection of instances that are going to be researched needs to conform to appropriate statistical methods in order to guarantee that they are representative of the whole in order for quantitative analysis to serve as a foundation for making broad generalizations.

The information that was gathered from the 384 respondents who were owners/managers of SMME's that were operating in rural parts of KwaZulu-Natal was sorted into categories and analysed in accordance with the research questions and research objectives. The statistical application, Statistical Package for the Social Sciences (SPSS) version 28.0 was used to conduct the analysis once the data was

inputted into the computer in accordance with the question codes that were pre-determined.

The researcher categorized the research questions after grouping them according to the objectives of the study, which allowed for the identification of patterns and the drawing of broad conclusions from the data. The initial kind of analysis looked at frequencies, such as the number of times a particular response was given as an example. After that, the factors were analysed in order to determine which ones have a significant impact on the outcomes of the study's dependent variables.

In order to examine the ways in which the variables are related to one another, a bi-variate analysis was carried out in the form of correlation tables, and suitable inferential statistics were also utilized. In addition to this, a correlation analysis was carried out in order to ascertain the levels of Chi-square significance for the variables. Frequency tables and bar graphs were used to illustrate the data that was provided.

In order to complete the data analysis for this study, the following statistical tests were utilized: Cronbach's alpha coefficient, descriptive statistical analysis, frequency analysis, Chi-squared test, factor statistical analysis and correlations. Cronbach's alpha coefficient is a measure of the reliability of data. A concise explanation of each of these examinations is provided below.

#### **4.9.1 TESTS USED FOR STATISTICAL ANALYSIS**

##### **4.9.1.1 Cronbach's Alpha Coefficient**

According to Serbetar and Sedlar (2016:194), citing Tavakol and Dennick (2011:53), conducting internal consistency testing is necessary in order to validate and establish the dependability of the measurement device as well as the data that was gathered. In this study, the internal consistency of the questionnaire is evaluated with the use of

Cronbach's Alpha Coefficient, which is a measurement of the questionnaire's capacity to measure the variables of interest in a consistent manner.

Cronbach's Alpha is an essential instrument that is used to quantify the internal consistency of test reliability results (Serbetar and Sedlar, 2016:194). It is also a requirement for doing an estimate of a reliability test. The results need to have greater alpha values in addition to a theoretical value that can range anywhere from 0 to 1 for there to be more confidence in the response (Tavakol and Dennick, 2011:53).

The significance of the Cronbach's Alpha statistic lies in the fact that it grows in proportion to the increase in the value of the test items when the dependability of the prior sampling is greater than 0.70 (Taber, 2018:1278). The "acceptable" dependability of a recently found construct needs to have a coefficient of at least 0.60 for it to be recognized as real and given credence in the scientific community (Taber, 2018:1278; Tavakol and Dennick, 2011:53).

#### **4.9.1.2 Descriptive Statistical Analysis**

Utilizing descriptive statistics allows one to both describe and convey the fundamental aspects of the data that was gathered. According to Mishra, Pandey, Singh, Gupta, Sahu and Keshri (2019:67), it is utilized to summarize data that has been gathered in order to assist a better comprehension of the material by making use of graphs and frequency analysis. As a result, descriptive analysis makes it possible to recognize patterns and the data distribution of the research variables using straightforward summaries and, in general, serves as the foundation for the vast majority of quantitative investigations.

There were two main uses of descriptive statistics in this study. They were initially used to summarize the data set. Secondly, they were applied to numerically describe phenomena, sample units, and other important factors (Mishra *et al.*, 2019: 68).

#### **4.9.1.3 Frequency Analysis**

This research study utilized frequency analysis in order to check the coding of data. The purpose of this analysis was to calculate the associated number of times each respondent referenced a given statement. When this data is analysed a better understanding of the components is obtained that could assist evaluate whether or not there is a research design that is acceptable and well-balanced. In addition to this, frequencies provide information on missing data and a sense of where the outliers are located (Shreffler and Huecker, 2013:1).

The frequency analysis provided a comprehensive understanding of the distribution of instances throughout the many response categories outlined in the research questionnaire. This analysis played a significant role in presenting the overall findings of the study (Brown, Suter and Churchill, 2018: 254). Consequently, the empirical data acquired from the frequencies makes it possible to investigate the aspects that the influence of modern technology has on emerging entrepreneurs in rural KwaZulu-Natal.

#### **4.9.1.4 Chi-square test**

The Chi-square ( $X^2$ ) test is one that does not require the use of any population parameters, nor does it require the underlying distribution to be normal (Turhan, 2020: 576). It is also a test that may be used to compare two populations. According to Turhan (2020: 576) and Shih and Fay (2017:822), a Chi-Square test, also known as  $X^2$  test, is carried out in order to ascertain whether or not there is a statistically significant relationship between the two variables in one or more categories.

Consequently, the examination involves a comparison between the quantity of instances that are categorized under each column of the table and the anticipated frequency in the absence of any association between the two variables comprising the table (Shih and Fay, 2017:822). To evaluate whether there was a statistically

significant connection between the variables, a Chi-square test of independence was carried out. The objectives of the study were used as a guide in the process of deciding which variables were investigated.

#### **4.9.1.5 Factor Analysis**

According to Watkins (2018:219); Taherdoost, Sahibuddin and Jalaliyoon (2022:375) factor analysis is an illustration of a multivariate interdependent approach, as this method specifies the utilization of statistical formulae in order to reduce the number of different types of factors that can be obtained from a large number of variables that have been evaluated. In a research methodology involving the measurement of numerous variables, the application of factor analysis has been recognized as a valuable tool for identifying the underlying commonalities among these variables, which are closely linked to the phenomena under investigation (Taherdoost *et al.*, 2022:376).

#### **4.9.1.6 Correlations**

In statistical analysis, the term "correlation" refers to the process of measuring the degree to which two or more variables are associated with one another (Senthilnathan, 2019:2; Makowski *et al.*, 2020:1). The Centre for Innovation in Research on Teaching (CIRT) (2019:1) asserts that correlation tests provide researchers the opportunity to ascertain the nature of interactions between variables and identify the specific manner in which they are interacting. In addition to this, a bivariate correlation analysis was carried out on the (ordinal) data to determine and identify key elements that influence the utilization of modern technology among emerging entrepreneurs in rural KZN.

#### **4.10 RELIABILITY**

Surucu and Maslakci (2020:2707) postulate that the researcher's goal should always be to maximize the accuracy and dependability of the research tools whenever a data collection strategy is used in a study. The dependability of an instrument is measured by its capacity for consistency, stability, and repeatability (Scholtes, Terwee and Poolman, 2011:237; Hajjar, 2018:48; Surucu and Maslakci, 2020:2707). Such instruments are utilized in the process of data collection. Reliability refers to the estimations of depth that are produced by the measurement with consistent outcomes; as a result, it is free of unstable mistakes (Scholtes *et al.*, 2011:237).

According to Taherdoost (2016:33), any kind of measurement is considered to be reliable to some degree in order to provide the highest consistency of results. In addition, Taherdoost (2016:33) proclaims that reliability refers to the degree to which a study may be repeated with comparable samples and under comparable circumstances to get comparable results.

The hypothesis that was offered by Alasuutari, Bickman, and Brannen (2009:276) suggests that the term "reliability" refers to the accuracy or precision of a measurement device. It is essential to keep in mind that tests in and of themselves do not provide trustworthy results; nevertheless, the scores obtained from them do. In certain situations, a certain test might produce scores that are quite dependable, while in others, it might not.

To ensure a comprehensive representation of the impact of sample-specific variables on score reliability, it is imperative to include a reliable estimate of the scores when reporting test findings (Scholtes *et al.*, 2011:237). According to Mellinger and Hanson (2020:179), when conducting quantitative research, it is essential to maintain high levels of reliability since this provides information about the dependability of test findings and displays the levels of consistency of the scores that were collected

Estimates of reliability are highly dependent not just on the individuals who take the tests but also on the environment in which they are administered, as well as any test

items or tasks that have been applied (Nardi, 2018:67). The computation of a reliability estimate encompasses various elements, such as the average and standard deviation of participants' scores, the quantity of test items or tasks, the level of complexity, the discriminatory properties of the test items or tasks, and the overall number of test items or tasks. (Nardi, 2018:67). It was crucial to conduct a reliability test for this study since it gave the researcher the assurance that the measurement used was near to the actual measurement.

#### **4.11 VALIDITY**

To determine whether a research instrument is valid, one must determine the degree to which an empirical measure corresponds to the researcher's actual comprehension of the issue under investigation. Some characteristics used to describe the instrument of validity are truthfulness, accuracy, sincerity, and soundness. According to Surucu and Maslakci (2020:2707), the validity of a study is dependent on the quality and suitability of the measures utilized throughout the data collection phase; due to this, it can be determined whether an instrument is valid or not and whether it is able to measure the ideas that it was designed to assess.

Once the validity of an instrument has been established, Taherdoost (2016:33) stated that it does not need to be shown again; rather, it more or less goes along with the right use of the instrument or test. A preliminary investigation was conducted to assess the dependability of the findings in this study, involving a pilot study with a sample of five business owners from each of the designated areas. The length of the questionnaire was taken into consideration as well because of the possibility that it would discourage participants from participating in the study, if it was too lengthy.

As was discussed, the questions were formulated based on the data collected during the literature review in order to guarantee that they accurately represented the aspects that influence of modern technology on emerging entrepreneurs in rural KZN. In addition to this, the questionnaire was inspected by an experienced editor to look for

any typos, grammatical errors, or sentences that were phrased incorrectly. The validity of the instrument was subsequently strengthened in this way.

#### **4.12 PRACTICABILITY**

According to Cooper and Schindler (2014:262), there are two factors that determine whether a project will be successful scientifically: the reliability and validity of the measuring method, and the practicability of the project's operational requirements. The practical usefulness of a research instrument is largely determined by the following characteristics, and it is assumed that a good instrument will fulfil all the necessary practical requirements:

- The term "economy" can relate to the amount of money that has been set aside for the research project, as well as the cost implications that are associated with the methods of data collection that were utilized to achieve the results that were wanted by the study (Cooper and Schindler 2014:262).
- A measuring equipment is considered to be convenient enough to pass the convenience test if it can be used with minimal effort and still produce accurate results (Cooper and Schindler 2014:262).
- The phrase "interpretability" refers to the "practicality relevance" of a scenario, which arises when others, beside the people who designed the test find it easy to interpret the results (Cooper and Schindler 2014:262).

The 10 business owners and managers of SMMEs in rural KZN participated in a pilot study to test the applicability of the measuring tool used in this research. The objective of the pilot study was to ascertain whether or not the inquiries and assertions posed to the participants were adequate to elicit the responses desired. The survey was carried out with the assistance of closed-ended questionnaires. In addition, for the purpose of

providing clarity, a statistician aided with both the analysis and interpretation of the results.

#### **4.13 ETHICAL CONSIDERATIONS**

Ethics in research is the need for a study be carried out in a manner that is both moral and responsible (Blumberg, Cooper, and Schindler 2014:121). According to Sekaran and Bougie (2016:162), ethical difficulties in research are significant components that call for consideration. These include, the handling of data collecting with confidentiality, privacy, and protection of respondents confidentially secured for the respondent's own self-esteem and respect for themselves. Similarly, these include the preservation of the respondents' privacy and confidentiality. In the same vein, these include protecting the respondent's right to anonymity.

Both Cooper and Schindler (2014:28) and Sekaran and Bougie (2016:162-163) come to the same conclusion on the standards of behaviour and norms that should be followed when conducting research. Acts that breach non-disclosure agreements, violate participant confidentiality, distort results, deceive others, employ irregularities in invoicing, escape legal accountability, and a variety of other activities, fall under the heading of unethical behaviour.

Each respondent in the study was given information that explained the nature of the research that was being conducted, and both verbal and written informed consent was obtained from each participant in the study (Babbie, 2016: 70). The respondents were provided with a Letter of Information (Appendix A), a consent form (Appendix B), and the questionnaire (Appendix C), all at the same time. This letter provided a comprehensive explanation of the nature of the study, as well as the potential drawbacks and advantages of participating in the research. The ethics code, norms, and regulations of the Durban University of Technology acted as the guiding principles for this research and served as the overarching framework around which the research was based.

#### **4.14 CONFIDENTIALITY**

In research, the terms confidentiality and anonymity are frequently used interchangeably, however they are distinct but related concepts. The idea of anonymity is intricately linked to that of confidentiality; in the context of social research, anonymity serves as the medium via which confidentiality can be operationalized (Dube, Mhlongo and Ngulube, 2014:202).

Confidentiality refers to something that is either said or written in confidence and is associated with secrets, whereas anonymity, on the other hand, is described as not having a name or being the work of an unknown author. Bos (2020:153) asserts that the fundamental tenet of confidentiality in research ethics involves the researcher's responsibility to uphold the dignity and autonomy of human subjects by appropriately handling and safeguarding any information acquired from or disclosed by them. This obligation necessitates that the researcher refrains from infringing upon the interests of individuals or communities. One method of maintaining confidentiality is to utilize anonymity. The respondents were assured that their information and participation in the study were strictly confidential and abided by the Ethics policy of the Durban University of Technology.

#### **4.15 ANONYMITY**

According to Dube, Mhlongo, and Ngulube (2014:202), to uphold the confidentiality of research participants, it is imperative to exclude any details that may potentially disclose their personal information, including but not limited to their names, nationality, ethnic origin, age, occupation, and place of residence, from the final findings of the study. Traditionally, anonymity refers to the practice of removing the contributor's name in order to shield them from potential repercussions. Due to the fact that participants will remain anonymous, their responses will never be able to be traced back to them.

#### **4.16 STUDY LIMITATIONS**

The research was carried out in the KwaZulu-Natal Province, and the participants consisted of 384 business owners/managers in specific rural areas which comprised of the following Ethekewini regions (Umlazi, KwaMashu, Ndwede and Verulam). The study only focused on KwaZulu-Natal; therefore it is only applicable to that Province. Nevertheless, because it is a true reflection of the KwaZulu-Natal Province and not of South Africa as a whole, lessons can still be gained by small, micro, and medium-sized businesses in other regions. In addition, a questionnaire with predetermined answers was used to collect primary data from the people who took part in the study. This questionnaire included preset statements that were generated from a comprehensive examination of the relevant literature in addition to the research objectives. Open-ended questions for additional comments were omitted from the questionnaires.

#### **4.17 SUMMARY**

This chapter provides an in-depth overview of the methodology that was utilized in the empirical study to determine the influence of modern technology in rural areas of KZN. Throughout the course of the chapter, the research objective and the research methodologies were laid out in detail. It provided an explanation of the quantitative methodology that was applied as well as the thought process that went into making this decision.

This chapter also examined the research design, the study population and sample, as well as the data collection instrument, measurement tool, and data analysis processes. The study limitations, in addition to the validity and reliability of the study, were both topics of discussion here. A discussion on the ethical aspects that need to be considered when carrying out the study was presented as the chapter's concluding topic. The presentation and interpretation of the outcomes of the primary study are the key objectives of chapter five that follows.

## **CHAPTER FIVE: DATA ANALYSIS, INTERPRETATION AND DISCUSSION**

### **5.1 INTRODUCTION**

The research design that was utilized in this study was covered in depth and provided in chapter four. The purpose of this chapter is to offer a detailed analytical report of the quantitative primary data that was obtained from the questionnaires from 384 respondents. This report will be the focus of this chapter. The purpose of the empirical research that was carried out was to investigate the influence of modern technology on emerging entrepreneurs in rural KwaZulu-Natal. This was a quantitative study, and the owners and managers of the small businesses who participated in the study were asked to fill out a questionnaire that was self-administered (see Appendix C).

The questionnaire, which acted as the primary tool for data collection, was completed by a total of 384 individuals. The data obtained from the responses was evaluated using SPSS version 28.0. Descriptive statistics for the quantitative data that was gathered in the form of graphs, cross tabulations, and other figures will be presented in the findings. Inferential techniques include the use of correlations and the interpretation of Chi-square test results with the aid of p-values. A comment on the statistical significance of the findings is necessary in the traditional manner of reporting results. In order to get a p-value for a hypothesis, a test statistic is used. When a statistical indicator reads "p =0.05," a result is considered significant.

### **5.2 THE SAMPLE**

A total of 384 questionnaires were distributed and subsequently collected, resulting in a response rate of 100%. As a result of achieving a response rate of 100%, it was possible to obtain a very good representation of the population, which in turn enabled definitive generalizations to be drawn.

### **5.3 THE RESEARCH INSTRUMENT**

The research instrument had 36 items, each of which was measured at either a nominal or ordinal level. The questionnaire was partitioned into six distinct sections, each of which assessed different themes, as depicted in the following manner:

- A Biographical data.
- B Use of modern technology by the emerging entrepreneur in rural KZN.
- C Implications of using modern technology among the emerging entrepreneurs in rural KwaZulu-Natal.
- D Factors contributing to the use of modern technology by the emerging entrepreneurs in rural KZN.
- E Characteristics of the emerging entrepreneur when using modern technology in rural KZN.
- F Impact of digitalization on the emerging rural entrepreneur in rural KZN.

The questionnaire was structured using a 5-point Likert scale and comprised of closed-ended questions to determine the influence of modern technology on emerging entrepreneurs in rural KZN. The use of cross-tabulations allowed for the investigation and analysis of the relationships that existed between the study's various variables. In addition to this, a reliability test was carried out using the information obtained from the questionnaire's various components.

### **5.4 RELIABILITY STATISTICS**

It is generally agreed that the two dimensions of precision, namely, their relative reliability and validity that are of the biggest importance are their level of granularity.

It will be necessary to carry out repeated measurements on the same subjects in order to ascertain the degree of dependability possessed by a measurement. The "acceptable" dependability of a recently found construct needs to have a coefficient of at least 0.60 in order for it to be recognized as real and given credence in the scientific community. The following table provides a summary of the findings of the Cronbach's alpha test for each individual item that comprised the questionnaire. The test was conducted on the questionnaire as a whole.

**Table 5.1: Reliability Scores**

	<b>Section</b>	<b>Number of Items</b>	<b>Cronbach's Alpha</b>
B	Use of modern technology by the emerging entrepreneur in rural KwaZulu Natal Province	5	0.785
C	Implications of using modern technology among the emerging entrepreneurs in rural KwaZulu Natal Province	5	0.706
D	Factors contributing to the use of modern technology by the emerging entrepreneurs in rural KwaZulu Natal Province	5	0.602
E	Characteristics of the emerging entrepreneur when using modern technology in rural KwaZulu Natal Province	4	0.583
F	Impact of digitalization on the emerging rural entrepreneur in rural KwaZulu Natal Province	2	0.463
	All items included	21	0.805

Source: Primary Data

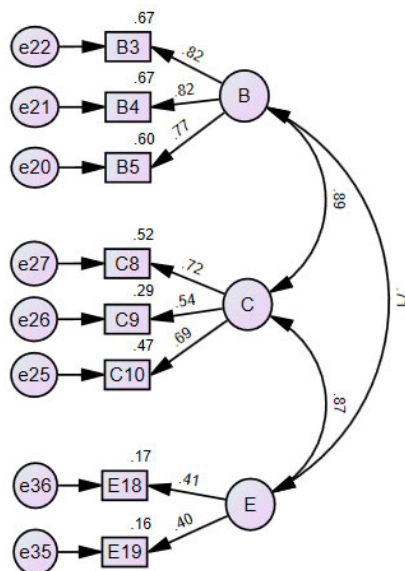
The reliability scores for the first 3 sections exceeded the recommended Cronbach's alpha value. This indicates a degree of acceptable, consistent scoring for these sections of the research. Section E was marginally less than the acceptable value. Section F had

a lower value. This is mainly due to the minimum number of statements which only comprised of two questions that constituted this section.

## 5.5 STRUCTURAL EQUATION MODEL

Structural equation modelling (SEM) is a statistical technique employed to analyse complex relationships between observable and latent variables. By merging measurement models and structural models, it provides a framework for evaluating and validating theoretical models. In SEM, the observed variables are those that can be measured directly, whereas latent variables are constructs that may be inferred from the seen variables but cannot be observed directly. The proposed methodology facilitates the assessment of both the amount and direction of correlations between variables, as well as the evaluation of the overall fit of the model to the collected data, and assessment of the importance of certain routes and coefficients. At least four model fit indices were used, is advised by Stephanie (2017: 4), as one index may have a flaw even though it has a valid value.

**Figure 5.1: Structural Equation Model**



The path diagram for the modified SEM is shown above and the dimensions are coded as under reliability. The model employed in this study utilizes structural linkages and employs a combination of factor analysis and multiple regression analysis methodologies. As a result, it yields a multivariate statistical outcome. It is employed to examine the structural link between latent constructs and measurable variables.

### 5.5.1 Maximum Likelihood Estimates

#### Regression Weights: (Group number 1 - Default model)

**Table 5.2: Regression Weight**

			Estimate	S.E.	C.R.	P	Label
B5	<---	B	1.000				
B4	<---	B	1.094	.069	15.885	***	par_1
B3	<---	B	1.167	.073	15.901	***	par_2
C10	<---	C	1.000				
C9	<---	C	.738	.080	9.215	***	par_3
C8	<---	C	1.041	.088	11.787	***	par_4
E19	<---	E	1.000				
E18	<---	E	1.000				

Source: Primary Data

The variables loaded strongly along their various factors (significant p-values indicated by \*\*\*  $p < 0.001$ ). These verify the EFA obtained under factor analysis.

### 5.5.2 Standardized Regression Weights: (Group number 1 - Default model)

**Table 5.3: Standardized Regression Weights**

	Estimate
B5 <--- B	.773
B4 <--- B	.817
B3 <--- B	.818
C10 <--- C	.686
C9 <--- C	.541
C8 <--- C	.723
E19 <--- E	.405
E18 <--- E	.412

The estimation of parameters is accomplished through the utilization of Maximum Likelihood (ML) methodologies. The primary objective of this iterative procedure is to optimize the probability of accurately predicting the calculated values of the criteria variable. The coefficients were all higher than the recommended value of 0.600. Inefficiently loading or redundant statements were removed from the model.

### 5.5.3 Regression Analysis

The level of significance relates to the strength of the relationships. The correlations are tested below.

**Covariances: (Group number 1 - Default model)**

**Table 5.4: Covariances**

	Estimate	S.E.	C.R.	P	Label
B <--> C	.562	.062	9.041	***	par_5
E <--> B	.253	.040	6.276	***	par_6
E <--> C	.268	.040	6.726	***	par_7

**Correlations: (Group number 1 - Default model)**

**Table 5.5: Correlations**

	Estimate
B <--> C	.891
E <--> B	.714
E <--> C	.872

Null hypothesis: There is no correlation between each of the dimensions.

Alternate hypothesis: There is a significant correlation.

Correlation is a standardized measure of the relationship between two variables, whereas covariance represents the strength and direction of their association. If the covariance between two constructs is high, then it follows that the correlations between them should likewise be statistically significant. All relationships are significant ( $p < 0.001$ ). The results indicate a strong, directly proportional relationship between the latent variables, with each of the  $r$  estimates being positive. For example: there is a strong positive correlation between B and C ( $r = 0.891$ ,  $p < 0.001$ ). That means an increase in the B results in an increase in C, and vice versa.

## 5.6 FACTOR ANALYSIS

The primary objective of the statistical method known as factor analysis is the reduction of the amount of available data. In survey research, one common application of factor analysis is when the researcher needs to represent a number of questions with a limited number of hypothetical variables. As an illustration, participants in a nationwide poll on political opinions would be asked to respond to three independent questions regarding environmental policy. These questions would encompass matters pertaining to the municipal, state, and national domains, correspondingly. Individually, each question would yield an inadequate assessment of one's stance on environmental policy, however, when taken together, the questions might provide a more accurate measurement of attitude.

It is possible to determine with the help of factor analysis whether or not the three measurements are in fact measuring the same item. If this is the case, the two sets of data can be combined to produce a new variable called a factor score variable. This variable would include a score for each respondent based on the factor. Techniques based on factors can be utilized in a wide number of contexts.

A researcher may have an interest in investigating if the skill set required for participation in a decathlon is as varied as the ten individual events, or if there exists a limited number of fundamental talents that are essential for achieving success in this multi-disciplinary athletic competition. You are not required to believe that the factors being analysed exist in order to carry out a factor analysis; nonetheless, in practice, the factors are typically interpreted, given names, and spoken of as though they were real objects.

The matrix table/s is preceded by a summarized table that reflects the results of KMO and Bartlett's Test. The **KMO and Bartlett's Test** table below shows two tests that indicate the suitability of data for structure detection. The **Kaiser-Meyer-Olkin Measure of Sampling Adequacy** is a statistical measure that quantifies the extent to which the variance in the variables may be attributed to underlying factors. Values that are close to 1.0 typically suggest that the data may benefit from the application of

factor analysis. If the number falls below 0.50, it is likely that the outcomes of the factor analysis will lack practical significance.

**Bartlett's test of sphericity** is employed to examine the hypothesis that the correlation matrix represents an identity matrix. This outcome would suggest that the variables lack any relationship and are hence inappropriate for detecting underlying structures. Significance levels below 0.05 suggest that conducting a factor analysis with the given data may be advantageous.

Factor analysis is done only for the Likert scale items. Certain components were divided into finer components. This is explained below in the rotated component matrix.

### 5.6.1 KMO and Bartlett's Test

**Table 5.6: KMO and Bartlett's Test**

Section	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
		Approx. Square	Chi- df	Sig.
All items included	0.822	2042.436	171	< 0.001

Source: Primary Data

According to the information presented in Table 5.6, all of the prerequisites for factor analysis have been met. That is, the value of the Kaiser-Meyer-Olkin Measure of Sampling Adequacy should be higher than 0.500, and the sig. value of the Bartlett's Test of Sphericity should be lower than 0.05. Both values should be considered satisfactory.

## 5.6.2 Rotated Component Matrix

**Table 5.7: Rotated Component Matrix**

	Component				
	1	2	3	4	5
I have access to the internet via a smartphone or other technological device	0.555	0.094	0.147	-0.087	-0.079
Broadband is available in my area, and I have access to the internet	0.267	-0.022	0.574	0.177	-0.023
I use modern technology to promote my business	0.845	0.113	0.111	0.033	0.008
Modern technology is used as source of information to access local/national markets	0.781	0.171	0.161	0.195	-0.026
Technology and online marketing can promote and grow the local/national markets	0.803	-0.03	0.077	0.216	0.132
In our business employees are encouraged and motivated to submit innovative ideas	0.229	0.476	0.185	0.111	-0.496
In our business our employees are skilled and can navigate the use of IoT in line with the business	0.128	0.161	0.529	0.465	-0.289
In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers	0.616	0.123	0.443	0.012	0.083
In our business we train our employees on how to use modern technology such as online business platforms	0.328	-0.05	0.728	0.161	-0.016
Technology has an impact in operating a local/national business	0.592	0.166	0.169	0.369	0.119
Access to finance affects the ability to grow our business	0.074	-0.042	-0.017	0.123	0.785
I believe that local municipalities provide adequate support for rural businesses when it comes to ICT infrastructure	0.03	0.133	0.533	-0.499	0.054
The local market is very small to sell our business' products	0.084	-0.12	0.141	0.619	-0.029
An entrepreneur's leadership characteristics affects the operation of a local/national SMME	-0.025	0.802	-0.016	-0.08	0.068
The lack of entrepreneurial and management skills affects the operation of a local/national SMME	-0.028	0.435	0.246	0.459	0.205
The lack of technical skills affects an entrepreneur's ability to communicate effectively?	0.26	0.415	0.188	0.102	0.076
As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business	0.189	0.503	0.045	-0.016	0.625
Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones	0.173	0.64	-0.104	0.024	-0.14
Technology and online marketing can promote the rural local/national market	0.262	0.2	0.056	0.571	0.17

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 9 iterations.

The primary objective of the statistical method known as factor analysis is the reduction of the amount of available data. In survey research, one common application of factor analysis is when the researcher wants to represent a number of questions with a limited number of hypothetical variables. This is a typical usage of factor analysis. With reference to Table 5.7 above: Principal component analysis was the method of extraction that was used, and the Varimax method of rotation with Kaiser normalization was the method that was used to rotate the data after it was extracted. By using this specific approach of orthogonal rotation, the number of variables that have significant loadings on each component is fully minimized and is practically achievable.

The understanding of the factors is made easier as a result. The inter-correlations between variables can be seen using factor analysis and loading. Items in the questionnaire that loaded similarly imply that they measured along the same component. An analysis of the content of items with a loading of 0.5 or higher (and utilizing the higher or highest loading in cases when items cross-loaded at a value greater than 0.5), effectively measured along the different components.

It is noted that the variables that constituted sections B and F loaded along 2 components (sub-themes), whilst Sections C, D and E loaded along 3 components. This means that respondents identified different themes within the section, and this will be discussed in detail in the analysis section.

## **5.7 BIOGRAPHICAL DATA**

In Section A of the questionnaire, the biographical information was gathered and there were nine statements that were organized according to age group, ownership structure of the business, number of years the business was operational, and respondents' highest level of education. The demonstration of the data is offered through the utilization of frequencies and percentages as the presentation tools.

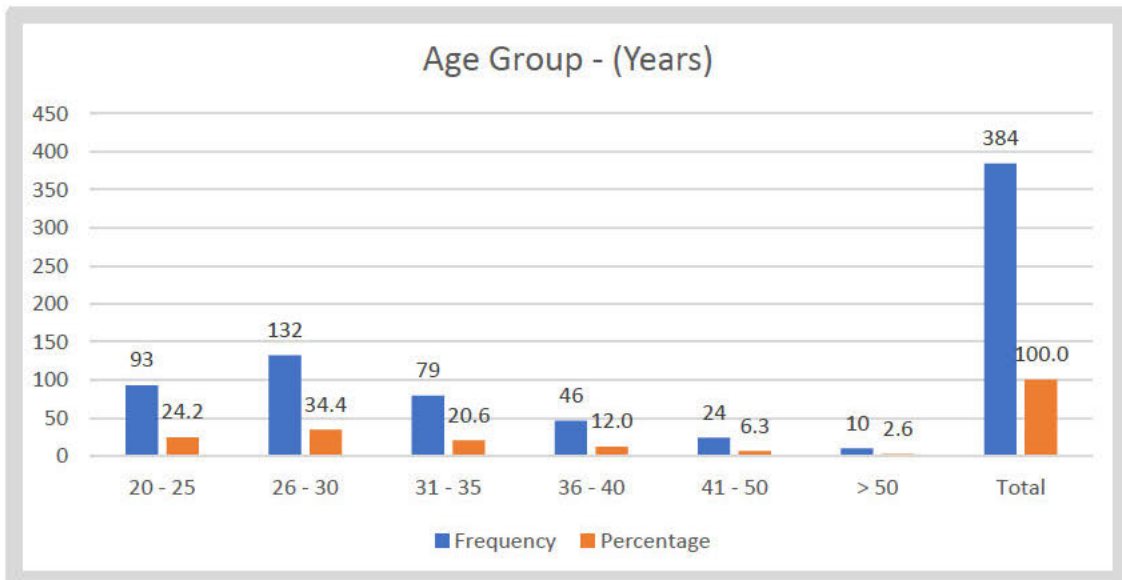
### 5.7.1 Age Group

**Table 5.8: Age Group**

**Age group (years)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 - 25	93	24.2	24.2	24.2
	26 - 30	132	34.4	34.4	58.6
	31 - 35	79	20.6	20.6	79.2
	36 - 40	46	12.0	12.0	91.1
	41 - 50	24	6.3	6.3	97.4
	> 50	10	2.6	2.6	100.0
	Total	384	100.0	100.0	

Source: Primary data



**Figure 5.2: Age Group – (Years)**

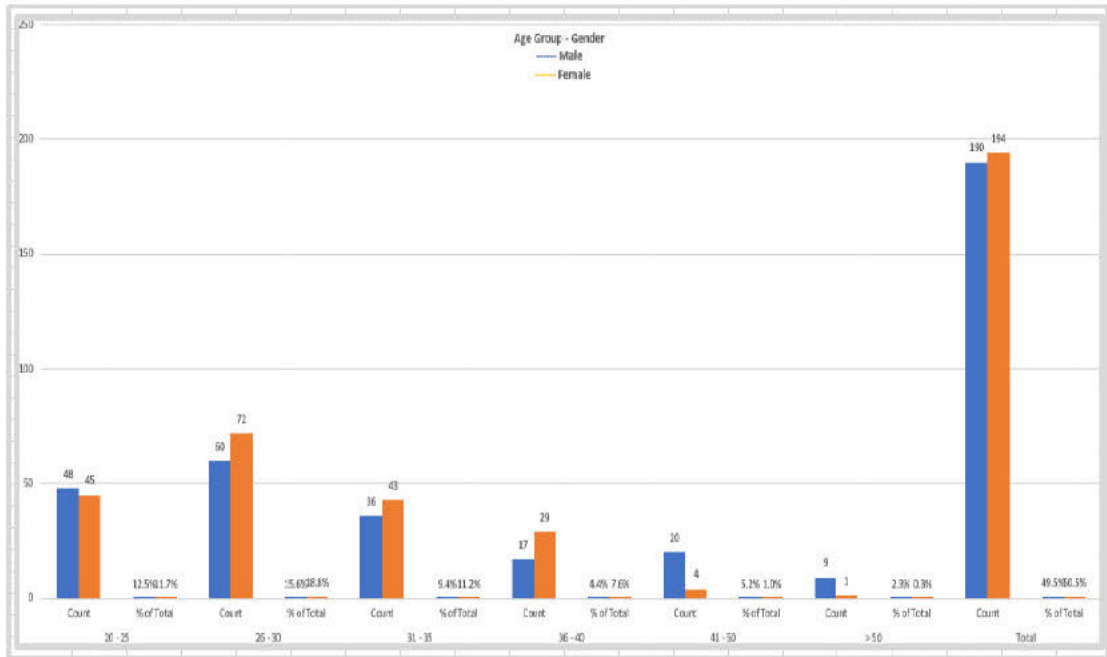
Table 5.8 and Figure 5.2 gives an overview of the frequency and percentage of the age group of the respondents. The majority of the owners/managers that took part in the survey were between the ages of 26 to 30 years (34.4%). This is followed by the age category 20-25 years which has the second largest group proportion (24.2%) and the age category of 31-35 years which has the third highest group proportion at 20.6%. According to the data presented in the table, these three categories make up 79.2% of the total 384 respondents that took part in the research. It is interesting to note that this figure demonstrates that there is a sizeable population of younger business owners/managers operating inside the rural areas designated for the purpose of this study. The age category of >50 years reflects 2.6%, which denotes that there are very few entrepreneurs within this category.

### 5.7.2 Gender

**Table 5.9: Gender**

Gender	Frequency	Percent
Male	190	49.5
Female	194	50.5
Total	384	100.0

Source: Primary data



**Figure 5.3: Age Group – (Gender)**

Overall, the ratio of males to females is approximately 1:1 (49.5%: 50.5%) ( $p = 0.838$ ). It is interesting to note that the age category of 26-30 years has the highest number of males (60) which is 15.6% of the total sample population, whilst in the same category, females also have the highest count of 70, equating to 18.8% of the total sample population.

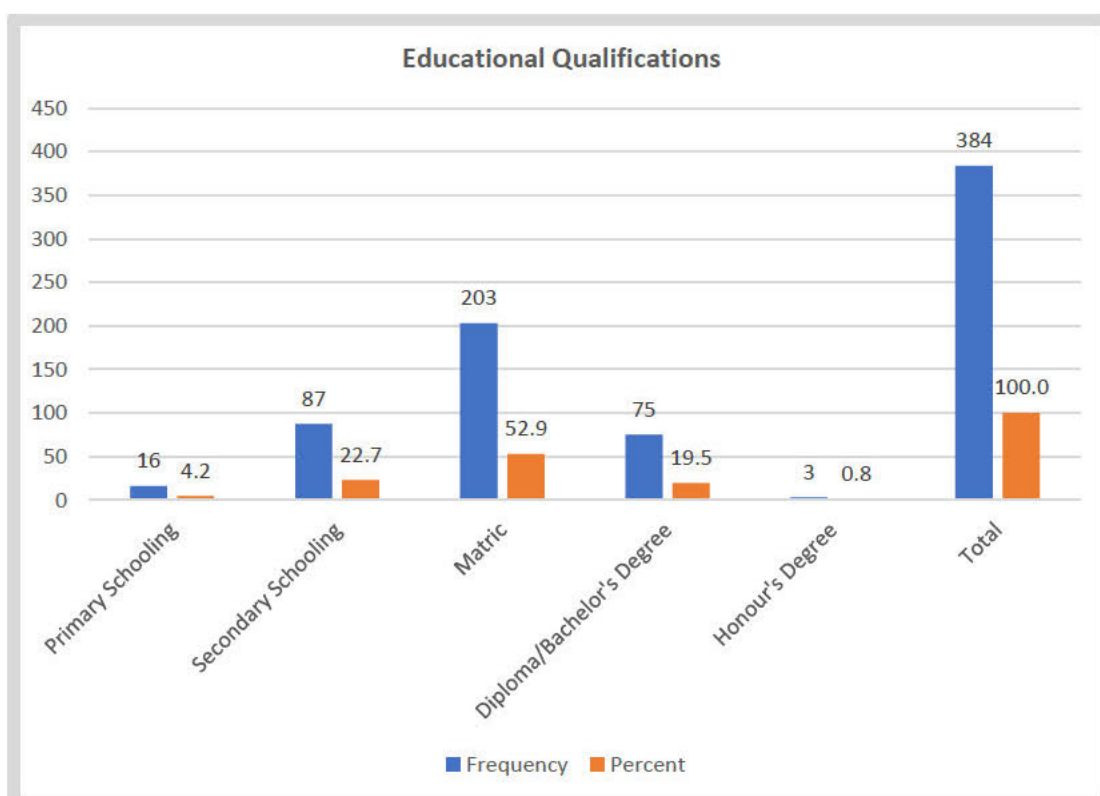
The male to female proportion is second highest in the age group 20-25 years, with the third highest being in the age group category 31-35 years. There is a significant difference in the age distributions due to the fact that the majority of respondents are under 40 years old ( $p < 0.001$ ). It is interesting to note that this statistic demonstrates that there is a significant population of younger business owners and managers operating within the listed sectors.

### 5.7.3 Educational Qualification

**Table 5.10: Educational Qualification**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary Schooling	16	4.2	4.2	4.2
	Secondary Schooling	87	22.7	22.7	26.8
	Matric	203	52.9	52.9	79.7
	Diploma/Bachelor's Degree	75	19.5	19.5	99.2
	Honour's Degree	3	0.8	0.8	100.0
	Total	384	100.0	100.0	

Source: Primary data



**Figure 5.4: Educational Qualification**

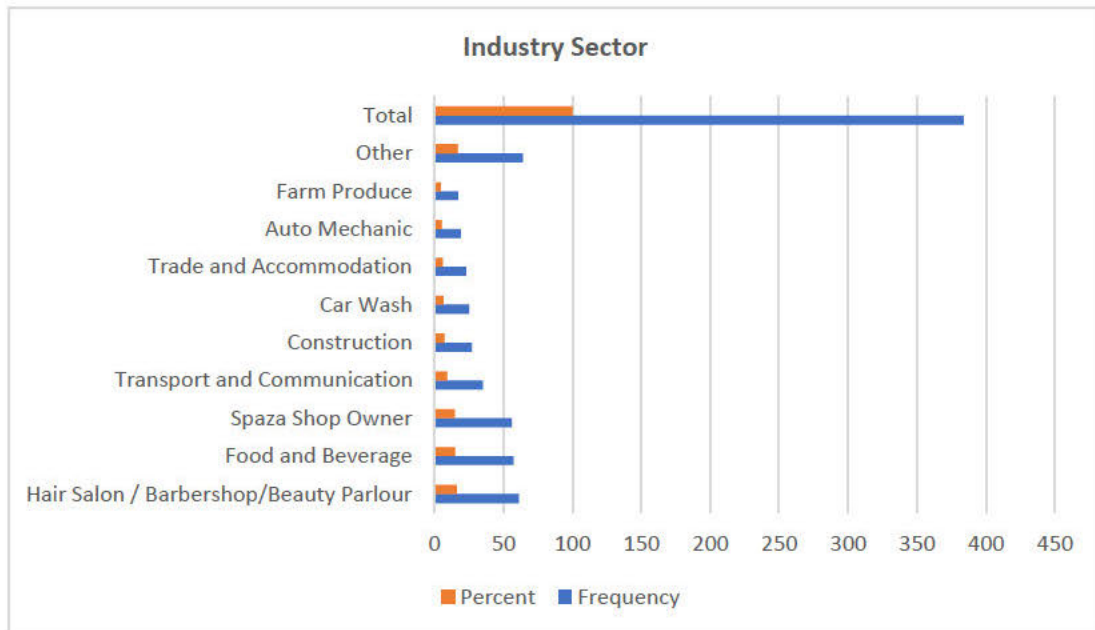
As can be seen in the Table 5.10 above, 203 (52.09%) of the small business owner/managers have achieved their maximum level of academic performance by earning a matriculation certificate. According to the data, 103 of the respondents (26.08%), were unable to obtain a matriculation or any qualification lower than a matriculation. One-fifth of the respondents (20%) had a degree ( $p < 0.001$ ). This figure is of considerable value as it demonstrates that a notable proportion of the participants have not attained an educational level above a secondary school certificate, at most.

#### 5.7.4 Industry Sector of SMME's

**Table 5.11: Classification of the Industry Sector**

Sector		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hair Salon / Barbershop/Beauty Parlour	61	15.9	15.9	15.9
	Food and Beverage	57	14.8	14.8	30.7
	Spaza Shop Owner	56	14.6	14.6	45.3
	Car Wash	25	6.5	6.5	51.8
	Auto Mechanic	19	4.9	4.9	56.8
	Construction	27	7.0	7.0	63.8
	Farm Produce	17	4.4	4.4	68.2
	Trade and Accommodation	23	6.0	6.0	74.2
	Transport and Communication	35	9.1	9.1	83.3
	Other	64	16.7	16.7	100.0
	Total	384	100.0	100.0	

Source: Primary data



**Figure 5.5: Classification of the Industry Sector**

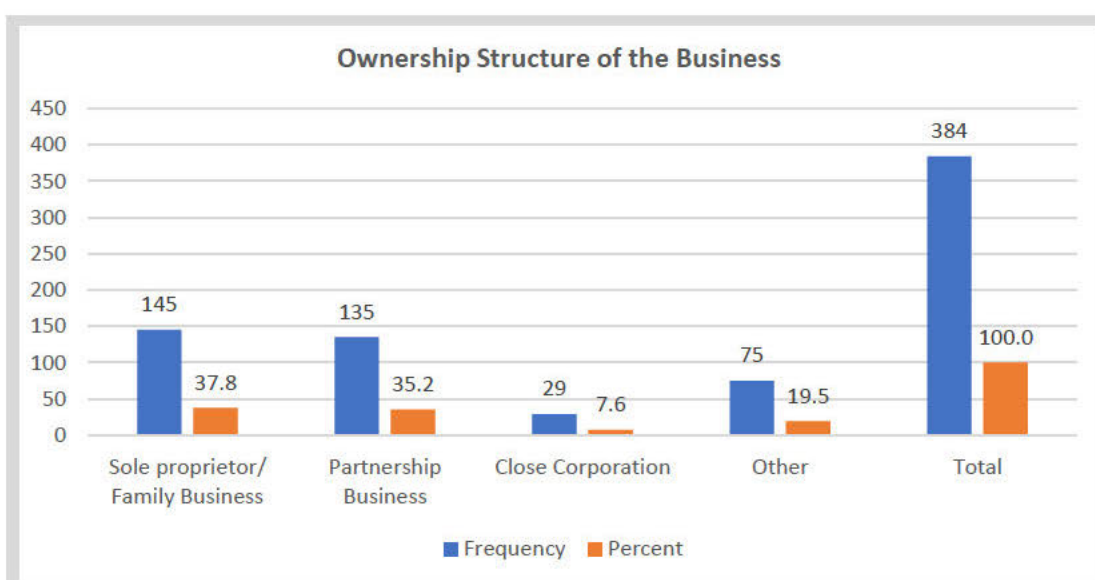
Since the current research was conducted in rural areas, which are characterized by high rates of both poverty and unemployment, it should come as no surprise that the other sector accounts for 64 (16.70%) of the total workforce. The three categories of Hair Salon/Barbershop/Beauty Parlour and Food and Beverage and Spaza Shop Owners comprised 45% of the sectors, which is indicative of the types of entrepreneurship businesses in the rural areas of KwaZulu-Natal. Transport and communication sector accounts for 35 (9.1%) of the businesses, with smaller numbers amongst the rest ( $p < 0.001$ ).

### 5.7.5 Ownership Structure of the Business

**Table 5.12: Ownership structure of the business**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sole proprietor/ Family Business	145	37.8	37.8	37.8
	Partnership Business	135	35.2	35.2	72.9
	Close Corporation	29	7.6	7.6	80.5
	Other	75	19.5	19.5	100.0
	Total	384	100.0	100.0	

Source: Primary data



**Figure 5.6: Ownership structure of the business**

Slightly more than one-third were sole proprietors or ran family businesses (37.8%) and a little more than one-third of the respondents were involved in partnerships (35.2%). About one fifth of those who participated in the survey selected the option unspecified “Other” (p 0.001). This indicates that sole proprietors or family run businesses make up the majority of SMME’s within the identified rural sectors of KZN.

### 5.7.6 Length of Ownership of the Business

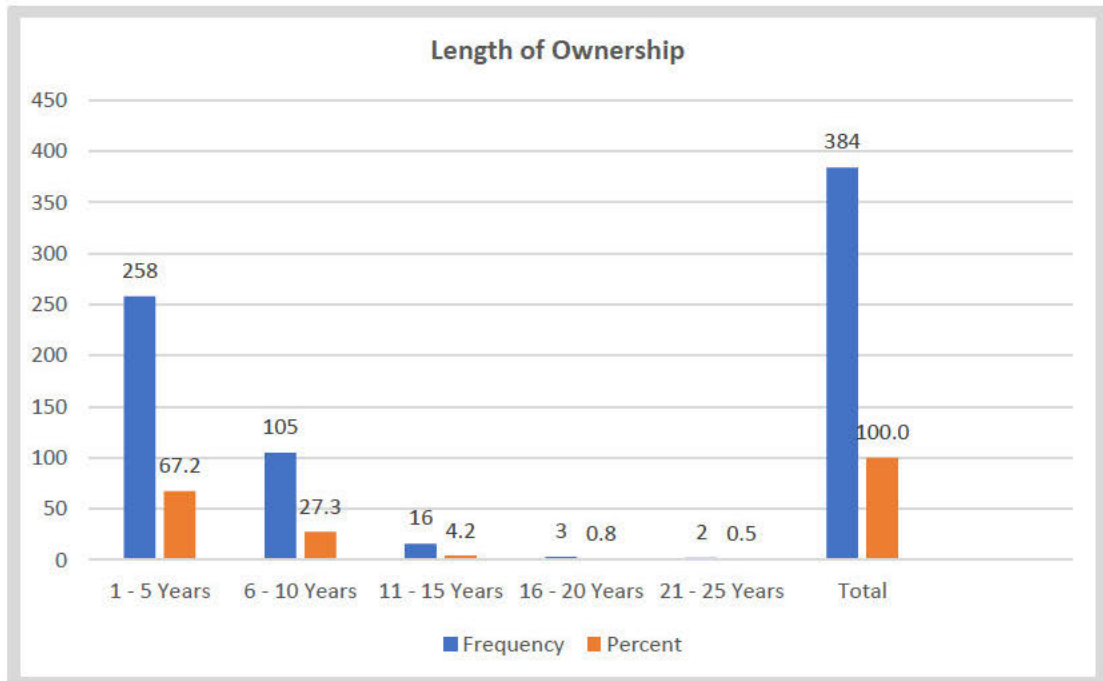
**Table 5.13: Length of Ownership of the Business**

The question posed to respondents was:

**For how many years have you owned/operated this business?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 – 5 Years	258	67.2	67.2	67.2
	6 – 10 Years	105	27.3	27.3	94.5
	11 – 15 Years	16	4.2	4.2	98.7
	16 – 20 Years	3	0.8	0.8	99.5
	21 – 25 Years	2	0.5	0.5	100.0
	Total	384	100.0	100.0	

Source: Primary data



### **Figure 5.7: Length of Ownership of the business**

Two-thirds of the respondents (67.2%) are engaged in business operations that was less than 5 years, with the remaining businesses being in operation for more than 5 years ( $p < 0.001$ ). Just over twenty-seven percent (27.3 %) have been in existence for 6-10 years, while 5.5% have been in operation for more than 10 years. As can be seen from the findings shown above, some SMME's have successfully identified their target markets and developed strategic plans that are sufficiently profitable to keep the business going. This suggests that a significant number of the participants had been employed for a considerable duration, which is noteworthy as it signifies the inclusion of comments from individuals with substantial job experience. Despite this, the figures indicate that a certain number of SMMEs may have shut down their operations before fully realizing the expansion potential that was available to them. As was previously mentioned, and as supported by the findings of a large number of studies (Staden (2022:458); (Department of Small Business Development (OECD, 2022); (Bushe, 2019:1); (Lings (2014: 160), a significant number of SMME's) do not make it past the fifth year of operation due to the challenges that threaten their very survival.

#### **5.7.7 Business Operation in Terms of Infrastructure**

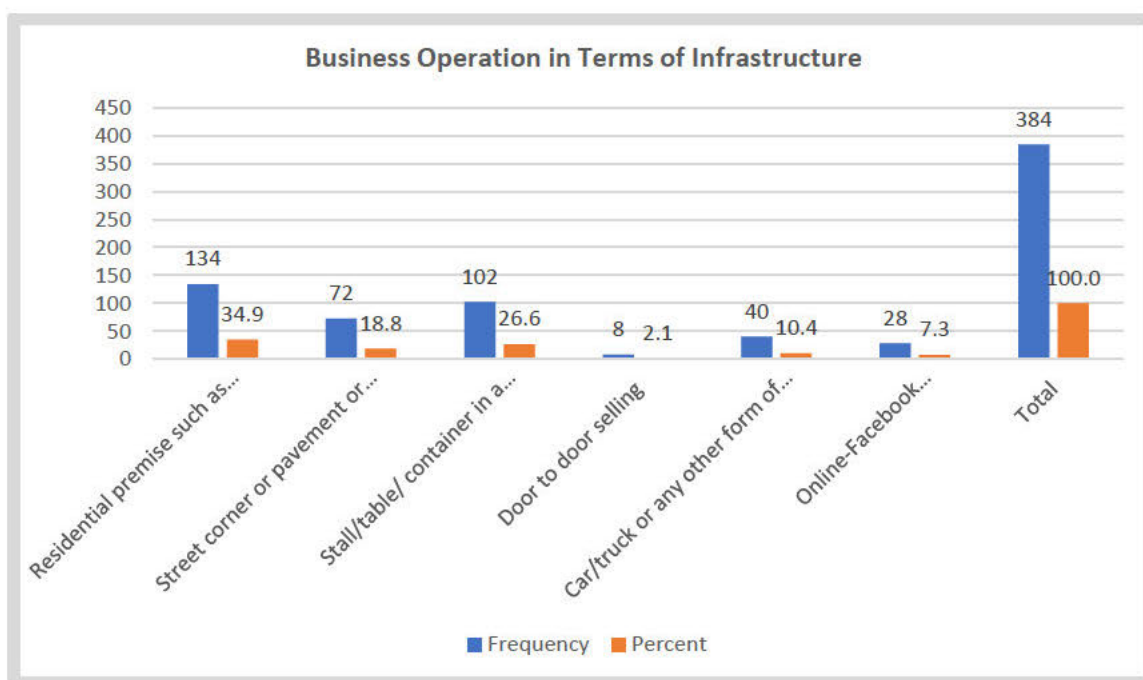
##### **Table 5.14: Business Operation in Terms of Infrastructure**

The question asked was:

### How is the business operated in terms of infrastructure?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Residential premise such as garage/outbuilding etc	134	34.9	34.9	34.9
	Street corner or pavement or tuck shop	72	18.8	18.8	53.6
	Stall/table/ container in a designated trading area	102	26.6	26.6	80.2
	Door to door selling	8	2.1	2.1	82.3
	Car/truck or any other form of transport method	40	10.4	10.4	92.7
	Online-Facebook marketplace/WhatsApp/Telesales/Instagram	28	7.3	7.3	100.0
	Total	384	100.0	100.0	

Source: Primary data



**Figure 5.8: Business Operation in Terms of Infrastructure**

The majority of the respondents 134 (34.9%) indicated that the business operations was managed from a residential premise, followed by 102 (26.6%) who operate from

a stall/table/container in a designated trading area. This finding is supported by Botha and Maylie (2020:18) in a study undertaken by the International Finance Cooperation to provide an assessment on the SMME sector in South Africa; they that assessed noted that businesses that are run from residential locations typically have older proprietors, are more likely to be owned by women, and are more likely to be in the manufacturing or services industries.

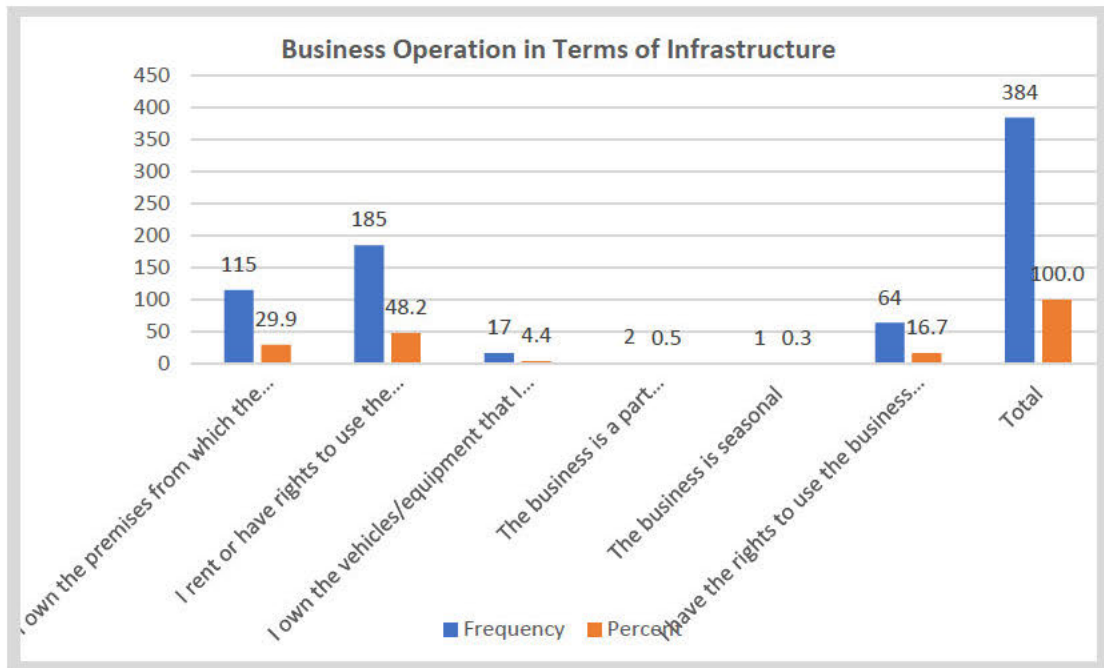
A total of 72 (18.8%) of the owner/managers operate from a street corner or tuck-shop, followed by 40 (10.4%) who operate the business from car/truck/other form of transport method. A total of 36 (9.4%) operate online or via door to door selling. This finding is supported by a study undertaken by the International Finance Cooperation (2020:18) that assessed the SMME sector in South Africa.

### 5.7.8 Business Operation in Terms of Business Rights

**Table 5.15: Business Operation in Terms of Business Rights**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I own the premises from which the business operates	115	29.9	29.9	29.9
	I rent or have rights to use the premises from which the business operates	185	48.2	48.2	78.1
	I own the vehicles/equipment that I use in the business	17	4.4	4.4	82.6
	The business is a part time/temporary side hustle	2	0.5	0.5	83.1
	The business is seasonal	1	0.3	0.3	83.3
	I have the rights to use the business name and operate under this name	64	16.7	16.7	100.0
	Total	384	100.0	100.0	

Source: Primary data



**Figure 5.9: Business Operation in Terms of Business Rights**

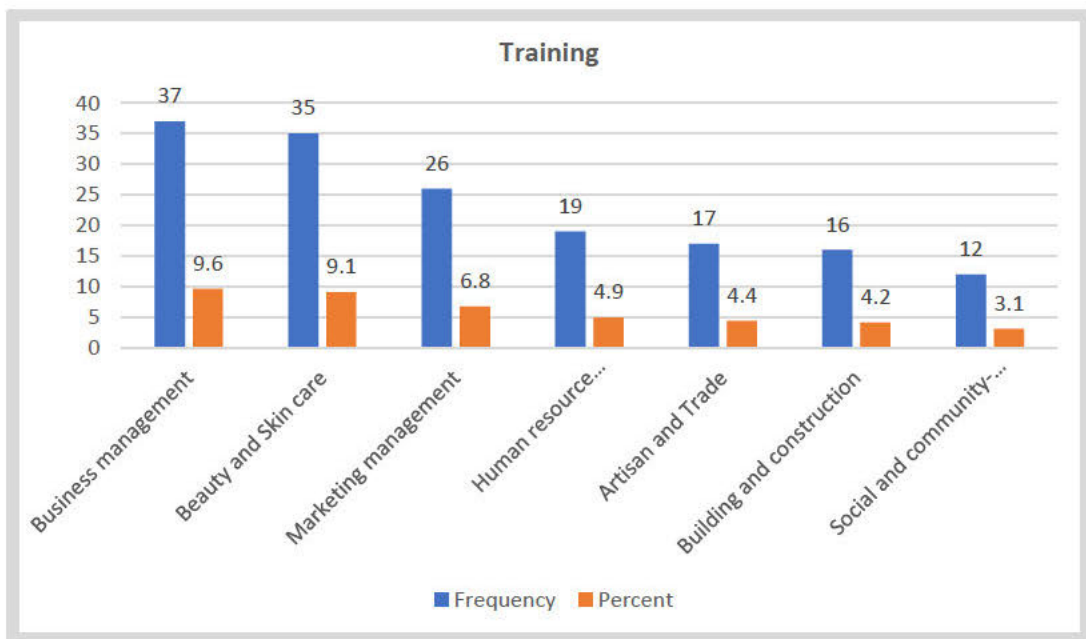
Table 5.15 and Figure 5.9 show that a large number of respondents 185 (48.2%) rent or have the rights to use the premises from which the business operates. A total of 115 (29.9%) of the respondents declared that they own the premises from which the business operates. Incidentally, this aligns to Table 5.14 and Figure 5.8 which shows that the majority of the respondents 134 (34.9%) indicated that that the business operations is managed from a residential premise and as such, do not have formal business premises. A total of 64 (16.7%) noted that they have the rights to use the business name and operate under this name, while 17 (4.4%) indicated that they own the vehicles that is used in the business. According to ADEA (2013:58) accessing suitable premises to operate a business is another constraint facing rural enterprises, as lack of space often means that entrepreneurs either operate the business from the street or their homes.

### 5.7.9 Training

**Table 5.16: Training**

	Frequency	Percent
Business management	37	9.6
Beauty and Skin care	35	9.1
Marketing management	26	6.8
Human resource management	19	4.9
Artisan and Trade	17	4.4
Building and construction	16	4.2
Social and community-based education	12	3.1

Source: Primary data



**Figure 5.10: Training**

According to Table 5.16 and Figure 5.10, a total of 37 (9.6%) of respondents received training in Business Management, while 35 (9.1%) received training in Beauty and Skin Care. A total of 26 (6.8%) received training in Marketing Management, while 19 (4.9%) received training in HR Management. The more capital intensive and highly qualified personnel are found in the areas such as artisan and trade 17 (4.4%) building

and construction 16 (4.2%) and social and community-based education 12 (3.1%); these respondents received training in these respective fields.

All of the aforementioned evaluations of the biographical questions were carried out with the intention of making certain that the survey was carried out with the appropriate respondents.

## **5.8 SECTION ANALYSIS**

In the following section, an analysis of the respondents' scoring patterns is carried out, first by dividing their scores according to the variables, and then according to the sections. As a first phase, the findings are presented with a frequency and percentage breakdown of the variables that make up each component. This serves as the initial step in the process. After that, the findings are put through a second round of examination, during which the importance of the assertions are considered.

### **5.8.1 Objective 1: To examine the use of modern technology among emerging entrepreneurs in the rural KwaZulu-Natal Province**

The primary objective of this section was to analyse and gain a better understanding of how emerging entrepreneurs in rural KZN make use of modern technologies. This section endeavours to address the objective 1 of this study and the following statements were taken from the primary questionnaire and used as the basis for this section's discussion of the findings regarding the aforementioned objective:

- I have access to the internet via a smartphone or other technological device.
- Broadband is available in my area, and I have access to the internet.
- I use modern technology to promote my business.
- Modern technology is used as a source of information to access local/national markets.

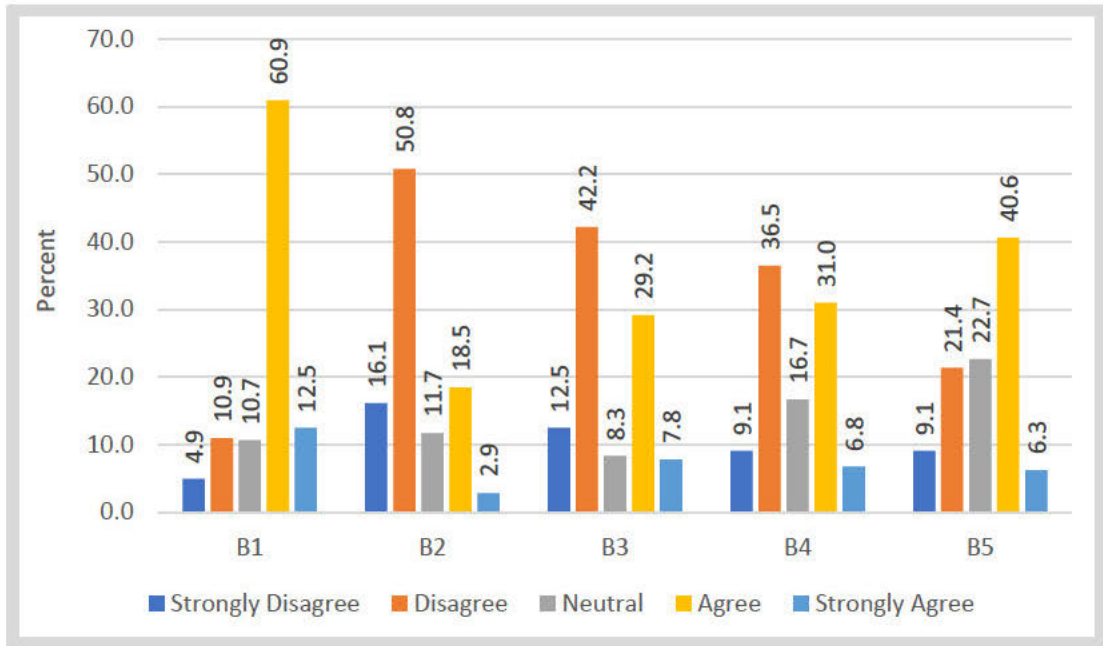
- Technology and online marketing can promote and grow the local/national markets.

The table below summarises the scoring patterns.

**Table 5.17: Modern Technology usage in rural KwaZulu -Natal Province**

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
I have access to the internet via a smartphone or other technological device	B 1	19	4.9%	42	10.9%	41	10.7%	234	60.9%	48	12.5%	< 0.001
Broadband is available in my area, and I have access to the internet	B 2	62	16.1%	195	50.8%	45	11.7%	71	18.5%	11	2.9%	< 0.001
I use modern technology to promote my business	B 3	48	12.5%	162	42.2%	32	8.3%	112	29.2%	30	7.8%	< 0.001
Modern technology is used as source of information to access local/national markets	B 4	35	9.1%	140	36.5%	64	16.7%	119	31.0%	26	6.8%	< 0.001
Technology and online marketing can promote and grow the local/national markets	B 5	35	9.1%	82	21.4%	87	22.7%	156	40.6%	24	6.3%	< 0.001

Source: Primary data

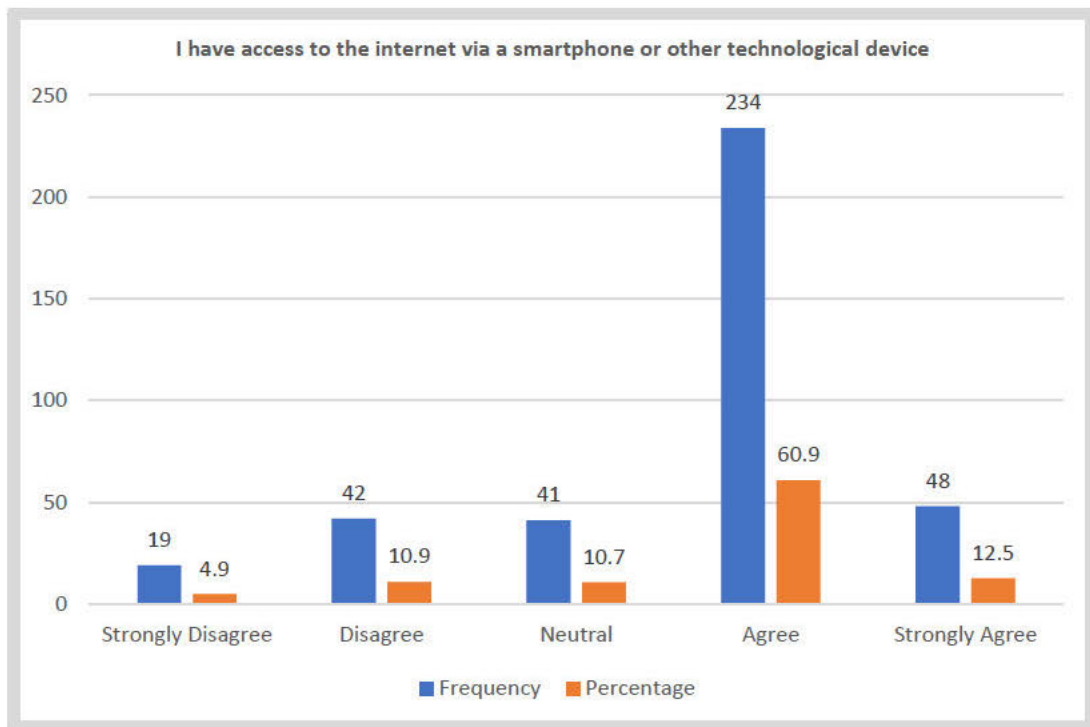


**Figure 5.11: Modern Technology usage in rural KwaZulu- Natal Province**

The following patterns are observed:

According to the findings of the study, two statements show significantly high levels of agreement and encompass the variables of having access to a smartphone or other technological device 234 (60.9%), while the second variable deals with technology and online marketing which can promote and grow the local/national markets 156 (40.6%). Three statements indicate higher levels of disagreement and are tied to these questions, with “Broadband is available in my area, and I have access to the internet” having 195 (50.8%) of respondents, reflecting the highest score, followed by “I use modern technology to promote my business” having 162 (42.2%) and ending with “Modern technology is used as source of information to access local/national markets” 140 (36.5%). The significance of the differences was tested and shown in the table.

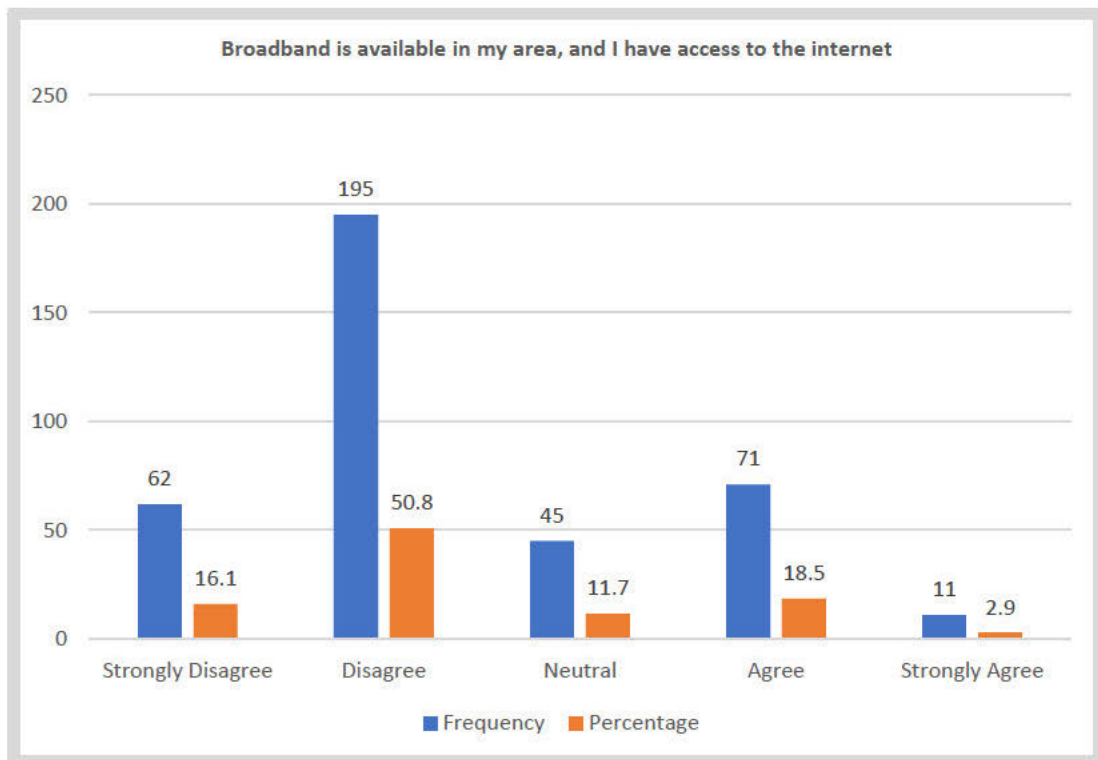
### 5.8.1.1 I have access to the internet via a smartphone or other technological device



**Figure 5.12: Access to the internet via a smartphone or other technological device**

Figure 5.12 indicates that a large number of respondents agreed with the statement of having access to the internet via a smartphone or other technological device 234 (60.9%), while 48 (12.5%) strongly agreed with this statement. 42 (10.7%) were neutral with the statement, while a combined 61(15.9%) disagreed and strongly disagreed. A Chi-square test was carried out in order to ascertain whether modern technology is used by the emerging entrepreneur via a smartphone or other technological device and the results show ( $X^2 = 408,526$ ;  $df = 4$ ;  $P = 0,001$ ) for this variable, which implies that this finding is statistically significant.

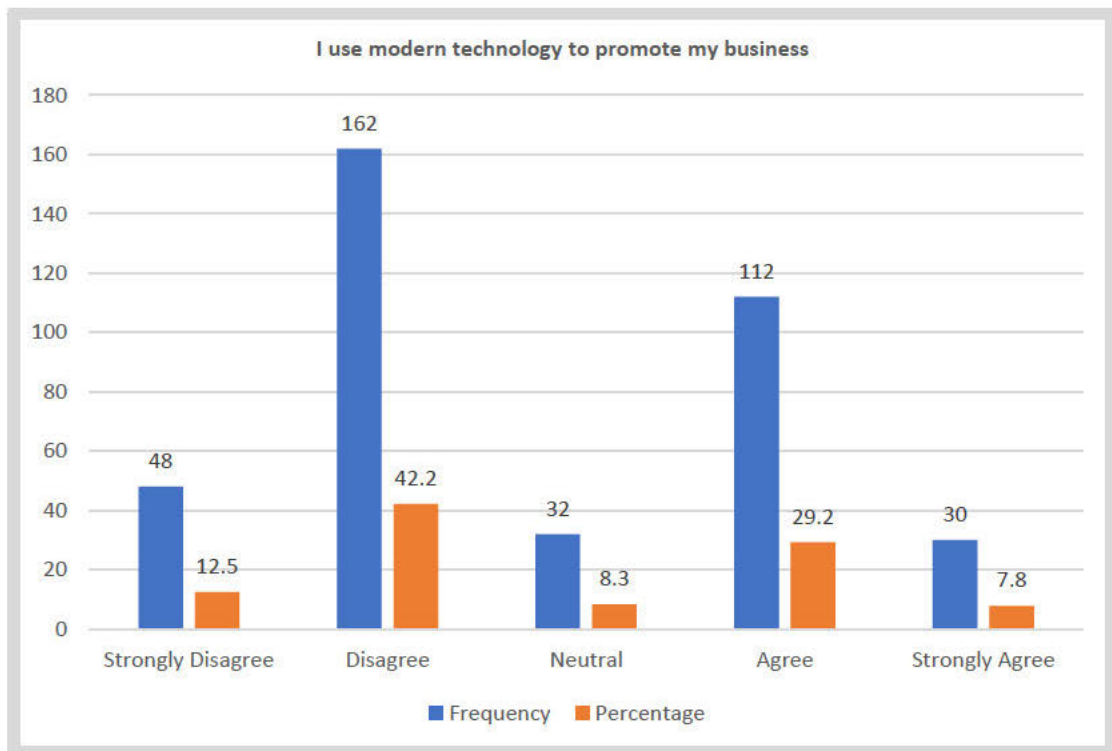
### 5.8.1.2 Broadband is available in my area, and I have access to the internet



**Figure 5.13: Broadband availability**

The findings show that the majority of the respondents, 195 (50.8%) disagreed and 62 (16.1%) strongly disagreed with this statement. 45 (11.7%) were neutral on this statement, while 71 (18.5%) agreed, and 11 (2.9%) strongly agreed that broadband was available in the area. A Chi-square test was carried out in order to determine the availability of broadband in the area, and the results show ( $X^2 = 254,750$ ;  $df = 4$ ;  $P = 0,001$ ) for this variable, which implies that this finding is statistically significant and not due to chance.

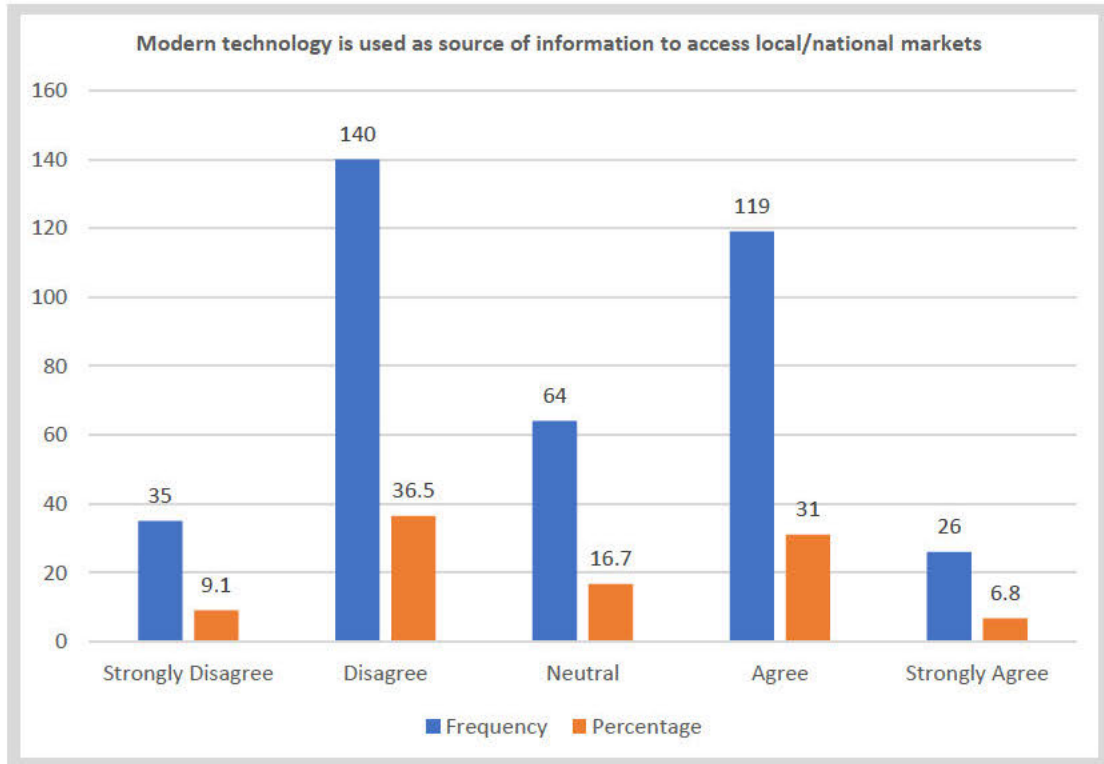
### 5.8.1.3 I use modern technology to promote my business



**Figure 5.14: Modern Technology is used to promote the business**

Figure 5.14 indicates that the majority of respondents 162 (42.2%) disagreed with the statement and 48 (12.5%) strongly disagreed. Thirty-two (8.3%) of the respondents were neutral, while 112 (29.2%) agreed and 30 (7.8%) strongly agreed. The Chi-square test findings show ( $X^2 = 176,104$ ;  $df = 4$ ;  $P = 0,001$ ) which shows that this statement is significant which means that respondents don't make use of modern technology to market the business.

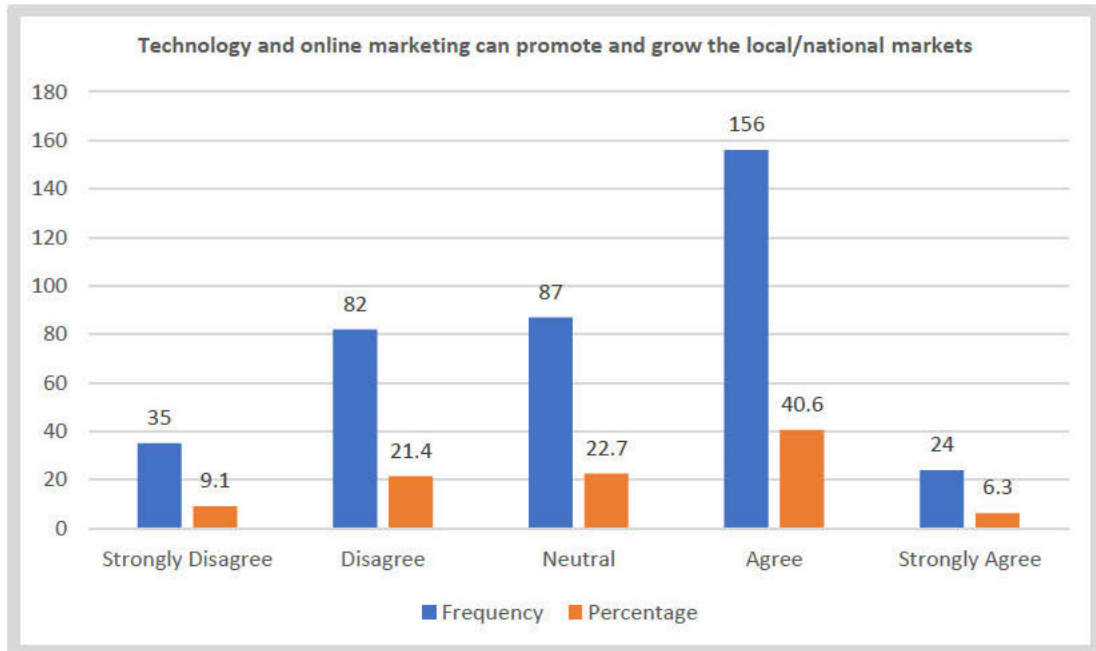
#### 5.8.1.4 Modern technology is used as source of information to access local/national markets



**Figure 5.15: Modern Technology is used to access local/national markets**

Due to the lack of infrastructure and access to technology facilities in many rural locations, a significant number of respondents from rural businesses disagreed with the statement 140 (36.5%) and 35 (9.1%) strongly disagreed. A total of 64 (16.7%) were neutral, while 119 (31%) agreed with the statement and 26 (6.8%) strongly agreed with this statement and view technology as a valuable source of knowledge that could assist them in gaining access to worldwide markets. The Chi-square test findings show ( $X^2 = 133,682$ ;  $df = 4$ ;  $P = 0,001$ ) which shows that this statement is significant and not due to chance.

### 5.8.1.5 Technology and online marketing can promote and grow the local/national markets



**Figure 5.16: Technology and online marketing can promote local/national markets**

The majority of the respondents 156 (40.6%) agreed and 24 (6.3%) strongly agreed that technology and online marketing can grow the local and national markets. 87 (22.7%) were neutral, while 82 (21.4%) disagreed and 35 (9.1%) strongly disagreed. This statistic indicates that the majority of respondents believe that the application of technology to the expansion of local and national markets is beneficial. The Chi-square test findings show ( $X^2 = 142,432$ ;  $df = 4$ ;  $P = 0,001$ ) which shows that this statement is significant and not due to chance.

### 5.8.1.6 Factor Analysis

According to the results of the factor analysis, there are two subthemes identified. The following four assertions shown below make up a subtheme “Modern Technology Facilities:”

- I have access to the internet via a smartphone or other technological device (B1).
- I use modern technology to promote my business (B3).
- Modern technology is used as source of information to access local/national markets (B4).
- Technology and online marketing can promote and grow the local/national markets (B5).

### 5.8.1.6.1 Modern Technology Facilities

**Table 5.18: Rotated Component Matrix<sup>a</sup>**

Rotated Component Matrix <sup>a</sup>						
	Component					
	1	2	3	4	5	
I have access to the internet via a smartphone or other technological device	0.555	0.094	0.147	-0.087	-0.079	B1
Broadband is available in my area, and I have access to the internet	0.267	-0.022	0.574	0.177	-0.023	B2
I use modern technology to promote my business	0.845	0.113	0.111	0.033	0.008	B3
Modern technology is used as source of information to access local/national markets	0.781	0.171	0.161	0.195	-0.026	B4
Technology and online marketing can promote and grow the local/national markets	0.803	-0.030	0.077	0.216	0.132	B5

Source: Primary data

The statements of I have access to the internet via a smartphone or other technological device (B1) 282 (73.45%) combined with Technology and online marketing can promote and grow the local/national markets (B5) 180 (46.93%) show a higher level

of agreement (agree and strongly agree) associated with these statements. These statements relate to having hardware (such as cell phones) and being able to access and engage on online marketing platforms. A Chi-square test was carried out in order to ascertain whether having access to the internet via a smartphone improves engagement online, and this is substantiated by the result of ( $X^2 = 408,526$ ;  $df = 4$ ;  $P = < 0.001$ ) for this variable.

Statement (B3) 162 (42.2%) respondents and statement (B4) 140 (36.5%) respondents indicate higher levels of disagreement. These relate to marketing of the business using the technology tools available. More respondents disagreed with the statements. That is, fewer respondents used the technology tools to advance their businesses or to promote the business on online platforms.

The results indicate that despite 73.45% of the respondents having a mobile device, very few of the respondents used the technology tools to advance their businesses. This finding is supported by Arubela and Jere (2022:2) in their research on examining digital difficulties in rural parts of South Africa; they discovered that the majority of individuals living in rural areas are not knowledgeable about technology, and the primary use of mobile phones is to make voice calls, send SMS, and browse social media sites.

#### **5.8.1.6.2 Poor Infrastructure**

The single statement “Broadband is available in my area”, and “I have access to the internet” (B2) formed its own subtheme, with a higher level of disagreement by 66.9% of the respondents. Rural areas face considerable obstacles when it comes to the adoption of technology due to a lack of dependable internet connectivity and limited technological infrastructure. This statement is supported by Lekhanya (2018:38); Salemink *et al.* (2017:360); Philip *et al.* (2017:387) and Townsend *et al.* (2016:34), who proclaimed that poor digital infrastructure and a lack of broadband connectivity is a crucial problem in rural places.

### **5.8.1.7 Crosstabulations**

To evaluate whether there was a statistically significant association between the variables, a Chi-square test of independence was carried out. The outcomes are presented in the tables below:

#### **5.8.1.7.1 I have access to the internet via a smartphone or other technological device \* Highest qualification**

**Table 5.19a: I have access to the internet via a smartphone or other technological device \* Highest qualification**

**Crosstab**

		Highest qualification					Total	
		Primary Schooling	Secondary Schooling	Matric	Diploma/Bachelor's Degree	Honour's Degree		
I have access to the internet via a smartphone or other technological device	Strongly Disagree	Count	2	11	4	2	0	19
		% within Highest qualification	12.5%	12.6%	2.0%	2.7%	0.0%	4.9%
	Disagree	Count	6	13	20	3	0	42
		% within Highest qualification	37.5%	14.9%	9.9%	4.0%	0.0%	10.9%
	Neutral	Count	1	13	25	2	0	41
		% within Highest qualification	6.3%	14.9%	12.3%	2.7%	0.0%	10.7%
	Agree	Count	5	33	132	61	3	234
		% within Highest qualification	31.3%	37.9%	65.0%	81.3%	100.0%	60.9%
	Strongly Agree	Count	2	17	22	7	0	48
		% within Highest qualification	12.5%	19.5%	10.8%	9.3%	0.0%	12.5%
	Total	Count	16	87	203	75	3	384
		% within Highest qualification	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Primary Data

**Table 5.19b: I have access to the internet via a smartphone or other technological device \* Highest qualification**

		Chi-Square Tests							
Value	df	Asymptotic Significance (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)			
			Significance	99.9% Confidence Interval		Significance	99.9% Confidence Interval		
				Lower Bound	Upper Bound		Lower Bound	Upper Bound	
Pearson Chi-Square	60,564 <sup>a</sup>	16	0.000	<0.001 <sup>b</sup>	0.000	0.000			
Likelihood Ratio	58.632	16	0.000	<0.001 <sup>b</sup>	0.000	0.001			
Fisher-Freeman-Halton Exact Test	56.178			<0.001 <sup>b</sup>	0.000	0.001			
Linear-by-Linear Association	20,265 <sup>c</sup>	1	0.000	<0.001 <sup>b</sup>	0.000	0.001	<0.001 <sup>b</sup>	0.000	0.001
N of Valid Cases	384								

Source: Primary Data

The p-value between “I have access to the internet via a smartphone or other technological device” and “Highest qualification” is < 0.001. This indicates that there is a significant relationship between the variables highlighted. That is, the qualification of the respondent did play a significant role in terms of respondents having access to the internet via a smartphone or other technological device. It has been observed that the degree to which one agrees with the statement is proportional to the education level of the respondent. This analysis is supported by the literature review which affirms that the more diversified and complicated the activities that can be found on the internet, the more cognitive resources are required to participate in them (Agarwal, Malik, Mishra, and Paul, 2021:48) (Mota and Cilento, 2020:2) (Spescha and Woerter, 2019:19).

**5.8.1.7.2 I have access to the internet via a smartphone or other technological device \* Sector**

**Table 5.20a: I have access to the internet via a smartphone or other technological device \* Sector**

Crosstab

		Sector										Total	
		Hair Salon / Barber shop/Beauty Parlour	Food and Beverage	Spaza Shop Owner	Car Wash	Auto Mechanic	Construction	Farm Produce	Trade and Accommodation	Transport and Communication	Other		
I have access to the internet via a smartphone or other technological device	Strongly Disagree	Count	4	4	3	0	2	1	0	0	0	5	19
		% within Sector	6.6%	7.0%	5.4%	0.0%	10.5%	3.7%	0.0%	0.0%	0.0%	7.8%	4.9%
	Disagree	Count	3	6	10	7	3	3	6	0	2	2	42
		% within Sector	4.9%	10.5%	17.9%	28.0%	15.8%	11.1%	35.3%	0.0%	5.7%	3.1%	10.9%
	Neutral	Count	6	9	5	2	2	3	1	2	5	6	41
		% within Sector	9.8%	15.8%	8.9%	8.0%	10.5%	11.1%	5.9%	8.7%	14.3%	9.4%	10.7%
	Agree	Count	34	28	26	16	12	19	6	20	27	46	234
		% within Sector	55.7%	49.1%	46.4%	64.0%	63.2%	70.4%	35.3%	87.0%	77.1%	71.9%	60.9%
	Strongly Agree	Count	14	10	12	0	0	1	4	1	1	5	48
		% within Sector	23.0%	17.5%	21.4%	0.0%	0.0%	3.7%	23.5%	4.3%	2.9%	7.8%	12.5%
	Total	Count	61	57	56	25	19	27	17	23	35	64	384
		% within Sector	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Primary Data

**Table 5.20b: I have access to the internet via a smartphone or other technological device \* Sector**

Chi-Square Tests									
	Value	df	Asymptotic Significance (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Significance	99.9% Confidence Interval		Significance	99.9% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	73,547 <sup>a</sup>	36	0.000	<0.001 <sup>b</sup>	0.000	0.001			
Likelihood Ratio	82.429	36	0.000	<0.001 <sup>b</sup>	0.000	0.001			
Fisher-Freeman-Halton Exact Test	66.860			<0.001 <sup>b</sup>	0.000	0.001			
Linear-by-Linear Association	0,080 <sup>c</sup>	1	0.778	0,784 <sup>b</sup>	0.771	0.798	0,397 <sup>b</sup>	0.381	0.413
N of Valid Cases	384								

Source: Primary Data

The p-value between “I have access to the internet via a smartphone or other technological device” and “Sector” is < 0.001. This indicates that there is a significant relationship between the variables highlighted. The findings show that the degree to which one agrees with the statement is determined by the sector of employment and business operations.

### Conclusion of Objective 1

Despite having access to a smartphone or technological device, many respondents declared that they do not have broadband in their area or use modern technology to promote their business. The absence of adequate infrastructure in rural areas can be a barrier to the incorporation of modern technologies by businesses in these areas.

According to the literature review analysis, this observation is implicit from the study findings as well.

### **5.7.2 Objective 2: To assess the implications of modern technology among emerging entrepreneurs in the rural KwaZulu-Natal Province**

The primary objective of this section was to assess the implications of modern technology and understand how it was being used in the operation of the business. This section endeavours to address objective 2 of this study and the following statements were taken from the primary questionnaire and used as the basis for this section's discussion of the findings regarding the aforementioned objective:

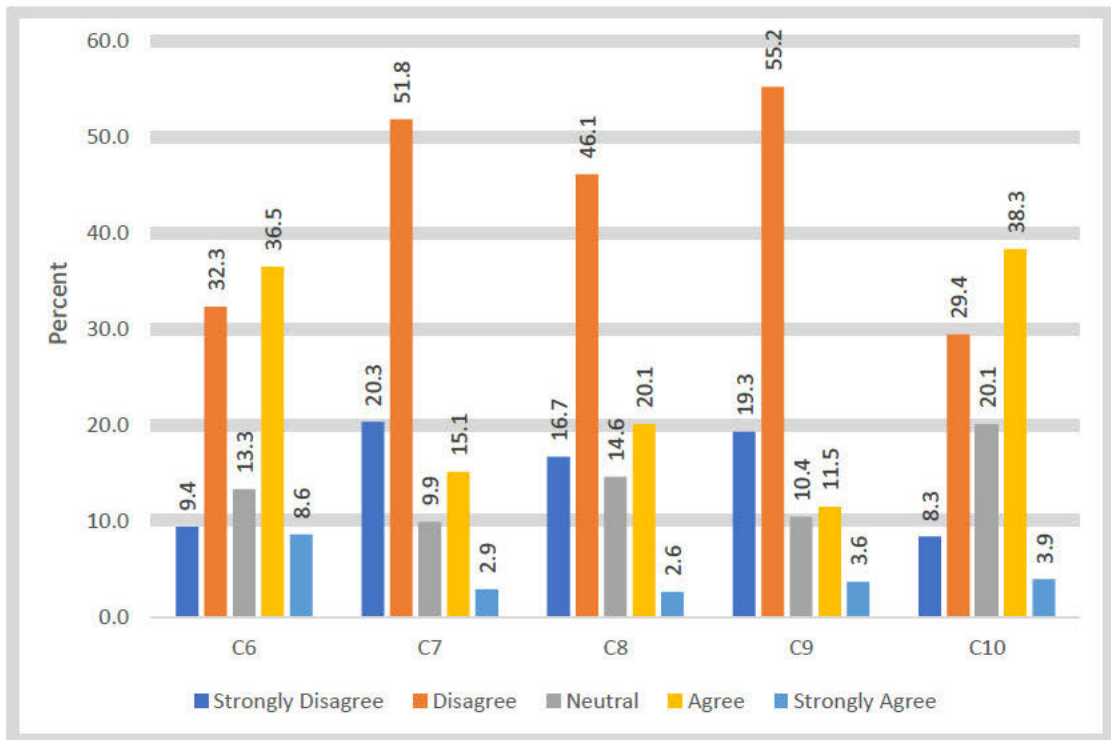
- In our business employees are encouraged and motivated to submit innovative ideas.
- In our business our employees are skilled and can navigate the use of IoT in line with the business.
- In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers.
- In our business we train our employees on how to use modern technology such as online business platforms.
- Technology has an impact in operating a local/national business.

The table below summarises the scoring patterns:

**Table 5.21: Assessment of Modern Technology use**

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
In our business employees are encouraged and motivated to submit innovative ideas	C6	36	9.4%	124	32.3%	51	13.3%	140	36.5%	33	8.6%	< 0.001
In our business our employees are skilled and can navigate the use of IoT in line with the business	C7	78	20.3%	199	51.8%	38	9.9%	58	15.1%	11	2.9%	< 0.001
In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers	C8	64	16.7%	177	46.1%	56	14.6%	77	20.1%	10	2.6%	< 0.001
In our business we train our employees on how to use modern technology such as online business platforms	C9	74	19.3%	212	55.2%	40	10.4%	44	11.5%	14	3.6%	< 0.001
Technology has an impact in operating a local/national business	C10	32	8.3%	113	29.4%	77	20.1%	147	38.3%	15	3.9%	< 0.001

Source: Primary Data



**Figure 5.17: Assessment of Modern Technology use**

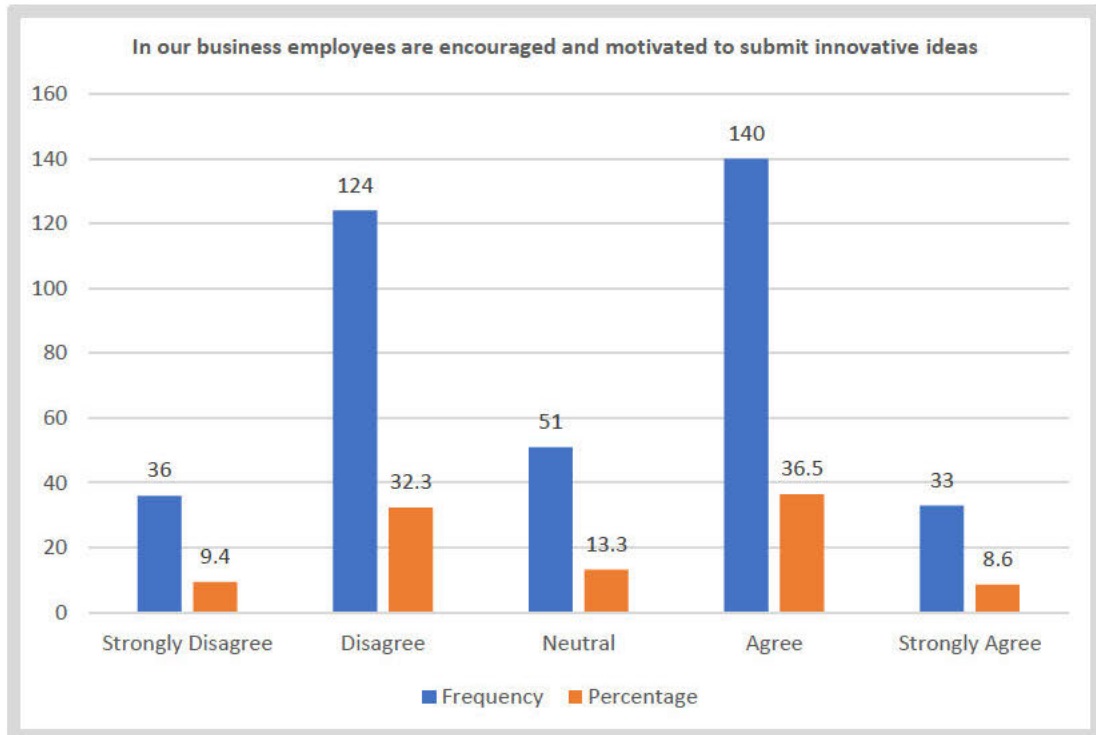
The following patterns are observed:

According to the findings of the study, two statements show significantly high levels of agreement and pertain to the statements: “In our business employees are encouraged and motivated to submit innovative ideas” with a combined total of 45.17% respondents and “Technology has an impact in operating a local/national business,” with a combined total of 42.2% respondents.

The following statements showed high levels of disagreement and include “In our business our employees are skilled and can navigate the use of IoT in line with the business” with a combined total of 72.1% respondents. “In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers (62.8%) and “In our business we train our employees on how to use modern technology such as online business platforms” (74.5%).

A large group of respondents 77 (20.1%) were neutral about the statement “Technology has an impact in operating a local/national business.” The significance of the differences was tested and shown in the table.

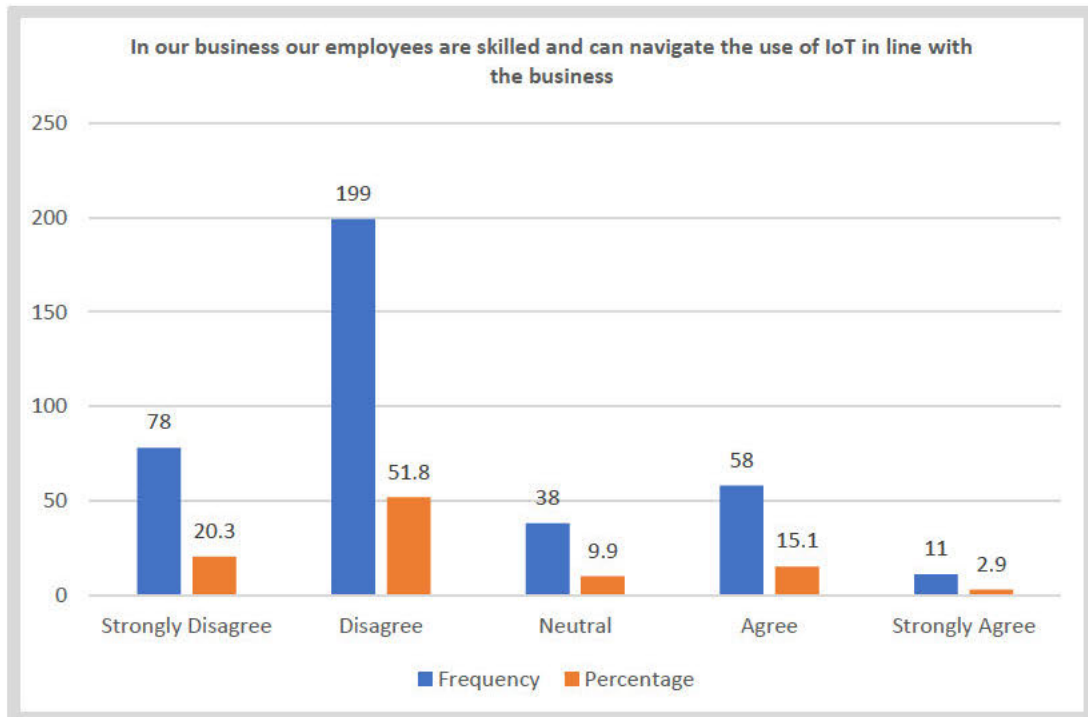
### 5.7.2.1 In our business employees are encouraged and motivated to submit innovative ideas



**Figure 5.18: In our business employees are encouraged and motivated to submit innovative ideas**

The majority of the respondents 140 (36.5%) agreed and 33 (8.6%) strongly agreed that employees are encouraged and motivated to submit innovative ideas. Fifty-one percent (13.3%) were neutral, while 124 (32.3%) disagreed and 36 (9.4%) strongly disagreed. This statistic indicates that the majority of respondents concur with the statement and this finding is substantiated by the Chi-square test which shows ( $\chi^2 = 136,339$ ;  $df = 4$ ;  $P = 0,001$ ) which shows that this statement is significant and not due to chance.

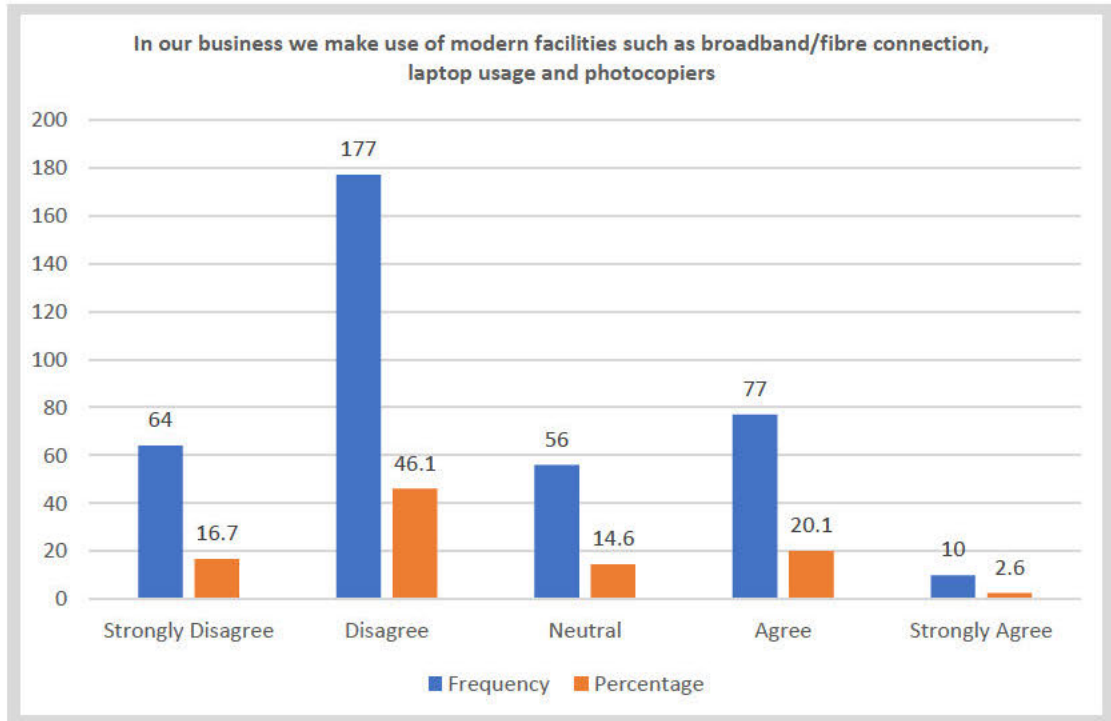
### 5.7.2.2 In our business our employees are skilled and can navigate the use of IoT in line with the business



**Figure 5.19: In our business our employees are skilled and can navigate the use of IoT in line with the business**

As depicted in Figure 5.19, a significant number of respondents disagree 199 (51.8%) and 78 (20.3%) strongly disagree that employees are skilled and can navigate the use of IoT in the business. A smaller number of respondents were neutral 38 (9.9%), while 58 (15.1%) agreed with the statement and a further 11 (2.9%) strongly agreed. According to Arubela and Jere (2022:3); Zondi and Qwabe (2022:9); (Salemink *et al.*, 2017: 361), low levels of education, high costs associated with ICT and a lack of digital skills are challenges experienced by rural entrepreneurs. This finding is supported by the assertions of Phillipson *et al.* (2019:232), who further contend that rural businesses have a lower digital adoption rate due to lack of intellectual skills and understanding how technology works. The Chi-square test findings show ( $X^2 = 275,036$ ;  $df = 4$ ;  $P = 0,001$ ) indicating that this statement is significant and not due to chance.

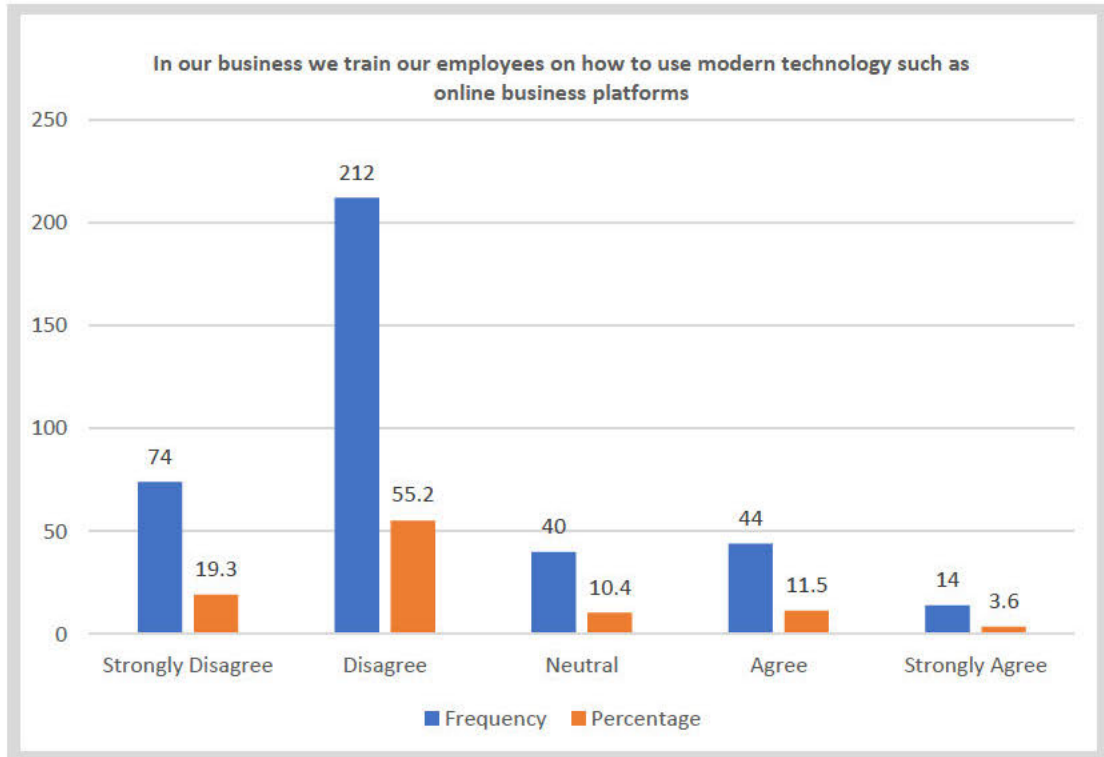
### 5.8.2.3 In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers



**Figure 5.20: Use of modern technology facilities**

As depicted in Figure 5.20, a significant number of respondents disagree 177 (46.1%) and 64 (16.7%) strongly disagree with the statement of making use of modern facilities that encompass broadband/fibre connection, laptop usage and photocopiers. Fifty-six (14.6%) of respondents were neutral on this statement, whilst 77 (20.1%) agreed and 10 (2.6%) strongly agreed. The Chi-square test findings show ( $X^2 = 321,104$ ;  $df = 4$ ;  $P = 0,001$ ) which shows that this statement is significant and not due to chance.

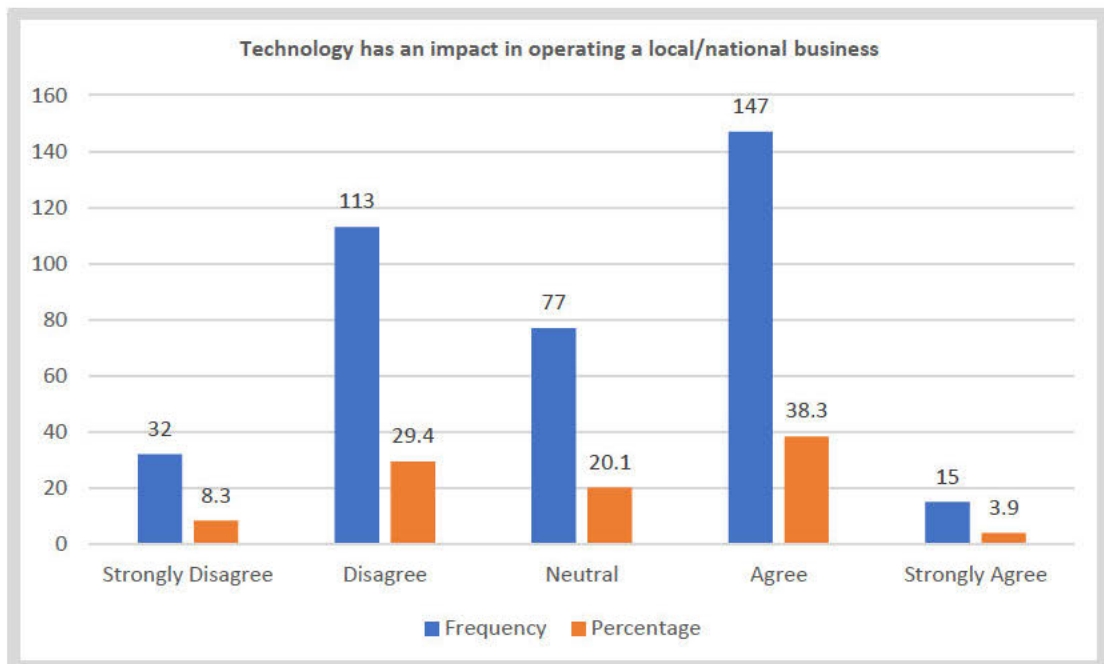
#### 5.8.2.4 In our business we train our employees on how to use modern technology such as online business platforms



**Figure 5.21: Employees are trained to use modern technology**

As depicted in Figure 5.21, a significant number of respondents disagreed 212 (55.2%) and 74 (19.3%) strongly disagreed with the statement that employees are trained on how to use modern technology in the business. A fair number of respondents were neutral 40 (10.4%), whilst 44 (11.5%) agreed and 14 (3.6%) strongly agreed. The Chi-square test findings show ( $X^2 = 196,599$ ;  $df = 4$ ;  $P = 0,001$ ) which shows that this statement is significant and not due to chance.

### 5.8.2.5 Technology has an impact in operating a local/national business



**Figure 5.22: Technology has an impact in operating a local/national business**

As depicted in Figure 5.22, a significant number of respondents agreed 147 (38.3%) and 15 (3.9%) strongly agreed with the statement that technology has an impact in operating a local/national business. A considerable number of respondents were neutral 77 (20.1%), while 113 (29.4%) disagreed and 32 (8.3%) strongly disagreed. The Chi-square test findings show ( $X^2 = 157,094$ ;  $df = 4$ ;  $P = 0,001$ ) which shows that this statement is significant and not due to chance

### 5.8.2.6 Factor Analysis

According to the results of the factor analysis, there are three subthemes identified:

- Innovation
- Lack of training
- ICT Adoption

**Table 5.22: Rotated Component Matrix**

Rotated Component Matrix <sup>a</sup>						
	Component					
	1	2	3	4	5	
In our business employees are encouraged and motivated to submit innovative ideas	0.229	0.476	0.185	0.111	-0.496	C6
In our business our employees are skilled and can navigate the use of IoT in line with the business	0.128	0.161	0.529	0.465	-0.289	C7
In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers	0.616	0.123	0.443	0.012	0.083	C8
In our business we train our employees on how to use modern technology such as online business platforms	0.328	-0.050	0.728	0.161	-0.016	C9
Technology has an impact in operating a local/national business	0.592	0.166	0.169	0.369	0.119	C10

Source: Primary Data

#### 5.8.2.6.1 Innovation

The theme of innovation pertaining to the statement “In our business employees are encouraged and motivated to submit innovative ideas” shows a higher level of agreement which encompasses 140 (36.5%) of respondents who agreed and 33 (8.6%) who strongly agreed. This means that business owners/managers encouraged creative thinking and the contribution of new knowledge towards growing the business. This is supported by the literature review as espoused by Kraus, McDowell, Ribeiro-Soriano, and Rodrguez-Garcia (2021:175) who note that the accumulation of knowledge creates openings for technical advancement, which can lead to the expansion of organizations or even the formation of new businesses.

#### **5.8.2.6.2 Lack of Training**

The theme of lack of training pertaining to the statements “In our business our employees are skilled and can navigate the use of IoT in line with the business (C7) showed a high level of disagreement 277 ((72.1%) and “In our business we train our employees on how to use modern technology such as online business platforms” (C9) also showed a high level of disagreement 286 (74.5%). This analysis shows that adequate training is not available to business owners/managers, which means that individuals do not have the necessary skills needed to use modern technology.

#### **5.8.2.6.3 ICT Adoption**

The statement “In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers” shows a combined disagreement score of 241 (62.8%) and “Technology has an impact in operating a local/national business” shows a combined disagreement score of 145 (37.8%). According to research carried out by Asrani (2022:1) and Hartono and Herman (2019:2); the adoption of modern information and communication technology is an essential factor in achieving competitive advantage and, more crucially, a prerequisite for enhancing and advancing company effectiveness.

#### **5.8.2.7 Crosstabulations**

To evaluate whether there was a statistically significant association between the variables, a Chi-square test of independence was carried out. The outcomes are presented in the tables below:

##### **5.8.2.7.1 In our business employees are encouraged and motivated to submit innovative ideas \* Sector**

**Table 5.23a: In our business employees are encouraged and motivated to submit innovative ideas \* Sector**

Crosstab

		Sector										Total	
		Hair Salon / Barber shop/Beauty Parlour	Food and Beverage	Spaza Shop Owner	Car Wash	Auto Mechanic	Construction	Farm Produce	Trade and Accommodation	Transport and Communication	Other		
In our business employees are encouraged and motivated to submit innovative ideas	Strongly Disagree	Count	4	12	7	2	2	1	3	0	2	3	36
		% within Sector	6.6%	21.1%	12.5%	8.0%	10.5%	3.7%	17.6%	0.0%	5.7%	4.7%	9.4%
	Disagree	Count	22	23	13	4	11	12	6	5	10	18	124
		% within Sector	36.1%	40.4%	23.2%	16.0%	57.9%	44.4%	35.3%	21.7%	28.6%	28.1%	32.3%
	Neutral	Count	8	6	2	1	1	8	2	7	9	7	51
		% within Sector	13.1%	10.5%	3.6%	4.0%	5.3%	29.6%	11.8%	30.4%	25.7%	10.9%	13.3%
	Agree	Count	19	13	24	16	5	5	5	10	12	31	140
		% within Sector	31.1%	22.8%	42.9%	64.0%	26.3%	18.5%	29.4%	43.5%	34.3%	48.4%	36.5%
	Strongly Agree	Count	8	3	10	2	0	1	1	1	2	5	33
		% within Sector	13.1%	5.3%	17.9%	8.0%	0.0%	3.7%	5.9%	4.3%	5.7%	7.8%	8.6%
	Total	Count	61	57	56	25	19	27	17	23	35	64	384
		% within Sector	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Primary Data

**Table 5.23b: In our business employees are encouraged and motivated to submit innovate ideas \* Sector**

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Significance	99.9% Confidence Interval		Significance	99.9% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	75,284 <sup>a</sup>	36	0.000	<0.001 <sup>b</sup>	0.000	0.001			
Likelihood Ratio	74.806	36	0.000	<0.001 <sup>b</sup>	0.000	0.002			
Fisher-Freeman-Halton Exact Test	66.772			<0.001 <sup>b</sup>	0.000	0.001			
Linear-by-Linear Association	2,198 <sup>c</sup>	1	0.138	0,142 <sup>b</sup>	0.130	0.153	0,071 <sup>b</sup>	0.062	0.079
N of Valid Cases	384								

Source: Primary Data

The p-value between “In our business employees are encouraged and motivated to submit innovative ideas” and “Sector” is < 0.001. This indicates that there is a significant relationship between the variables highlighted. That is, the industry sector that the business operates in does play a significant role in terms of respondents being encouraged to submit innovative ideas. A key finding is that the more service oriented the business is, the higher the level of agreement with the statement. The influence of technology on entrepreneurial endeavours might seem very different from one sector to the next and from market to market. While certain industries may gain more from the use of technology, others may encounter particular hurdles that limit the

**5.8.2.7.2 In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers \* Highest qualification**

**Table 5.24a: In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers \* Highest qualification**

**Crosstab**

		Highest qualification					Total	
		Primary Schooling	Secondary Schooling	Matric	Diploma/Bachelor's Degree	Honour's Degree		
In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers	Strongly Disagree	Count	5	21	30	8	0	64
		% within Highest qualification	31.3%	24.1%	14.8%	10.7%	0.0%	16.7%
	Disagree	Count	10	50	95	21	1	177
		% within Highest qualification	62.5%	57.5%	46.8%	28.0%	33.3%	46.1%
	Neutral	Count	0	6	34	15	1	56
		% within Highest qualification	0.0%	6.9%	16.7%	20.0%	33.3%	14.6%
	Agree	Count	1	9	37	29	1	77
		% within Highest qualification	6.3%	10.3%	18.2%	38.7%	33.3%	20.1%
	Strongly Agree	Count	0	1	7	2	0	10
		% within Highest qualification	0.0%	1.1%	3.4%	2.7%	0.0%	2.6%
	Total	Count	16	87	203	75	3	384
		% within Highest qualification	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Primary Data

**Table 5.24b: In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers \* Highest qualification**

Chi-Square Tests									
	Value	df	Asymptotic Significance (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Significance	99.9% Confidence Interval		Significance	99.9% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	46,013 <sup>a</sup>	16	0.000	0,001 <sup>b</sup>	0.000	0.002			
Likelihood Ratio	48.674	16	0.000	<0.001 <sup>b</sup>	0.000	0.001			
Fisher-Freeman-Halton Exact Test	44.996			<0.001 <sup>b</sup>	0.000	0.001			
Linear-by-Linear Association	33,329 <sup>c</sup>	1	0.000	<0.001 <sup>b</sup>	0.000	0.001	<0.001 <sup>b</sup>	0.000	0.001
N of Valid Cases	384								

Source: Primary Data

The p-value between “In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers” and “Qualification” is < 0.001. This means that there is a significant relationship between the variables highlighted. That is, the qualification of the respondent did play a significant role in terms of respondents agreeing with the business making use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers.

### Conclusion of Objective 2

The summation of objective 2 shows that training and having access to the internet via modern technology tools is not readily available for rural business owners/managers.

According to the literature review analysis for rural businesses, this observation is implicit from the study findings as well.

### **5.7.3 Objective 3: To evaluate the factors contributing to the use of modern technology among emerging entrepreneurs in the rural KwaZulu-Natal Province**

The primary objective of this section was to evaluate the factors contributing to the use of modern technology and understand the impact it has on using technology in the operation of the business. This section endeavours to address objective 3 of this study and the following statements were taken from the primary questionnaire and used as the basis for this section's discussion of the findings regarding the aforementioned objective:

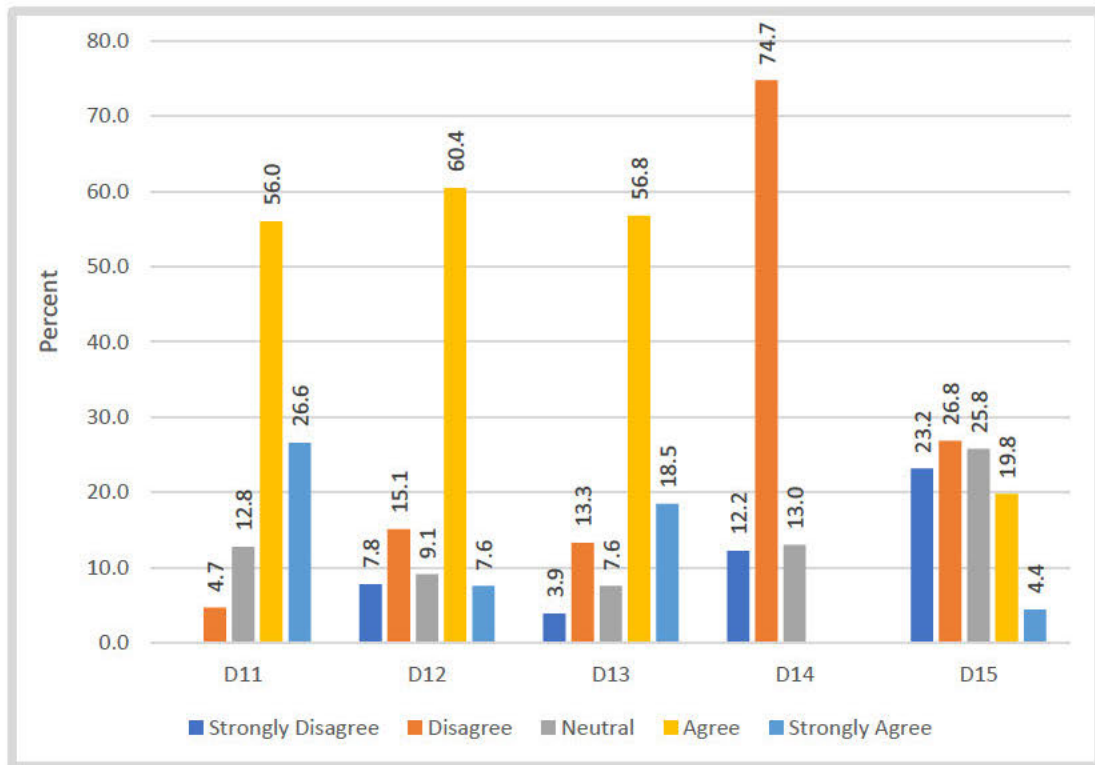
- The costs of internet are very high in terms of purchasing data bundles and Wi-Fi access.
- I believe that you need to have special skills to be able to use technology online.
- Access to finance affects the ability to grow our business.
- I believe that local municipalities provide adequate support for rural businesses when it comes to ICT infrastructure.
- The local market is very small to sell our business products.

The table below summarises the scoring patterns:

**Table 5.25: Factors contributing to the use of Modern Technology**

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
The costs of internet are very high in terms of purchasing data bundles and Wi-Fi access	D1 1	0	0.0%	18	4.7%	49	12.8%	215	56.0%	102	26.6%	< 0.001
I believe that you need to have special skills to be able to use technology online	D1 2	30	7.8%	58	15.1%	35	9.1%	232	60.4%	29	7.6%	< 0.001
Access to finance affects the ability to grow our business	D1 3	15	3.9%	51	13.3%	29	7.6%	218	56.8%	71	18.5%	< 0.001
I believe that local municipalities provide adequate support for rural businesses when it comes to ICT infrastructure	D1 4	47	12.2%	287	74.7%	50	13.0%	0	0.0%	0	0.0%	< 0.001
The local market is very small to sell our business' products	D1 5	89	23.2%	103	26.8%	99	25.8%	76	19.8%	17	4.4%	< 0.001

Source: Primary Data



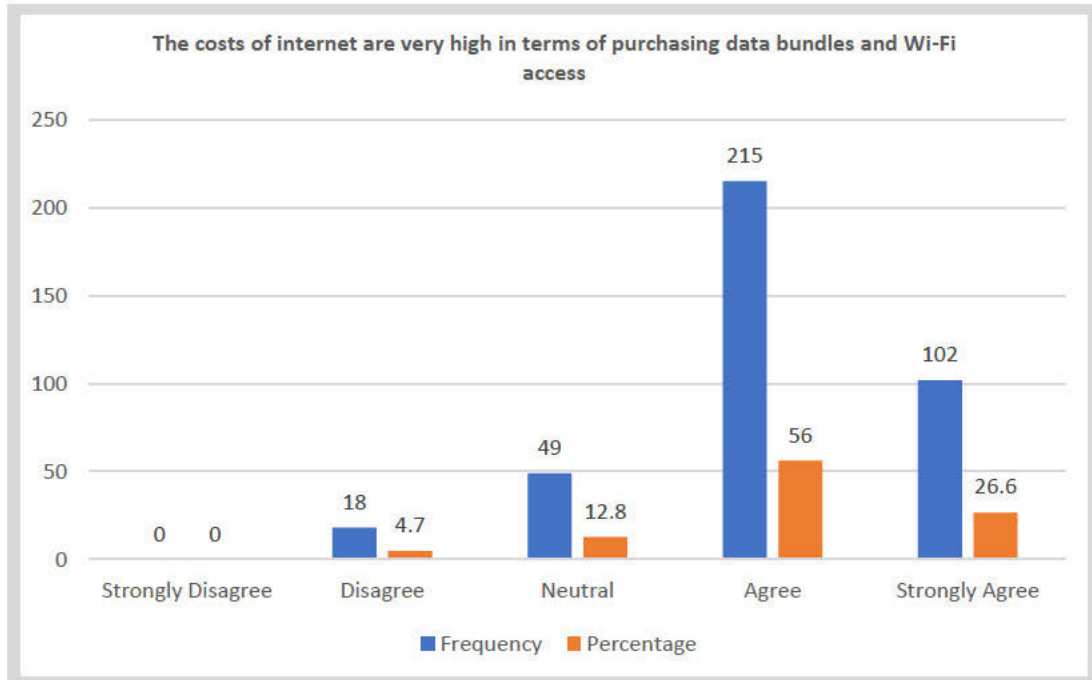
**Figure 5.23: Factors contributing to the use of Modern Technology**

The following patterns are observed:

According to the findings of the study, three statements show significantly high levels of agreement and pertain to the statements of “The costs of internet are very high in terms of purchasing data bundles and Wi-Fi access” with 215 (56%); “I believe that you need to have special skills to be able to use technology online” with 232 (60.4%), and “Access to finance affects the ability to grow our business” with 218 (56.8%).

A significant number of respondents, 287 (74.7%) disagreed with the statement that municipalities provide adequate support for rural businesses when it comes to ICT infrastructure. A fair portion of respondents, 99 (25.8%) were neutral on whether the size of the local market had an impact on selling the business products, while 103 (26.8%) disagreed and 89 (23.2%) strongly disagreed with this statement. The significance of the differences is tested and shown in table 5.25.

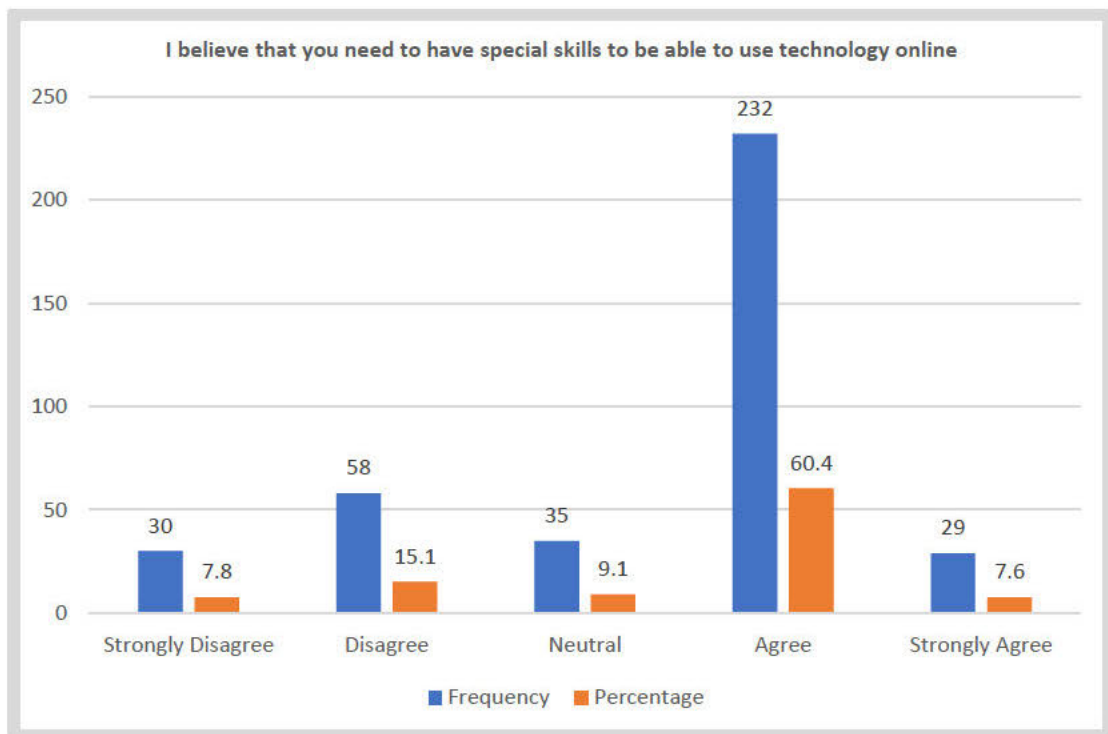
### 5.8.7.3.1 The costs of internet are very high in terms of purchasing data bundles and Wi-Fi access



**Figure 5.24: The costs of internet are very high in terms of purchasing data bundles and Wi-Fi access**

As depicted in Figure 5.24, a significant number of respondents agreed 215 (56%) and 102 (26.6%) strongly agreed that the cost of internet was very high in terms of purchasing data bundles and wi-fi access. A smaller number of respondents were neutral 49 (12.8%), while 18 (4.7%) disagreed with the statement. This indicates that 82% of the respondents believed that broadband and Wi-Fi access prices are high. This is supported by Gillwald, Mothobi and Rademan (2018:20) in their study on the State of ICT in South Africa that broadband cost are high. The Chi-square test findings show ( $X^2 = 224,271$ ;  $df = 3$ ;  $P = 0,001$ ) which denotes that this statement is significant and not due to chance.

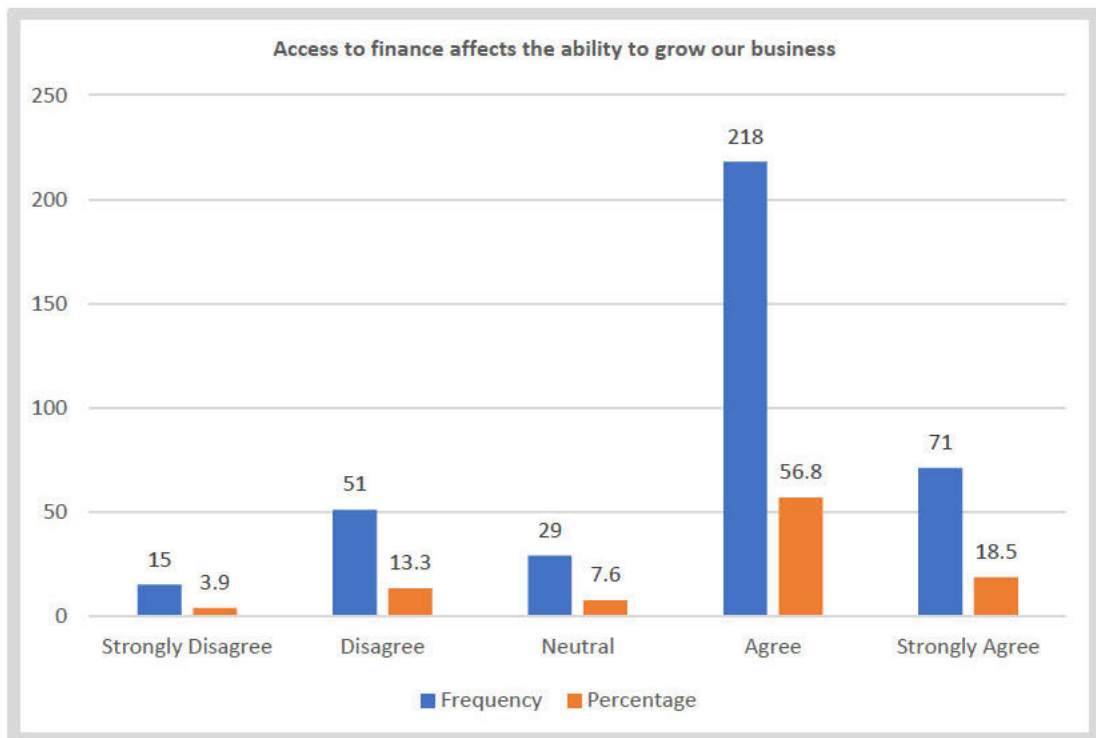
### 5.8.3.2 I believe that you need to have special skills to be able to use technology online



**Figure 5.25: I believe that you need to have special skills to be able to use technology online**

As depicted in Figure 5.25, a significant number of respondents 232 (60.4%) agreed and 29 (7.6%) strongly agreed that you need to have special skills to be able to use technology online. Several of the respondents 35 (9.1%) were neutral about the statement, while 58 (15.1%) disagreed and only 30 (7.8%) strongly disagreed with the statement. This indicates that 68% of the respondents believed that an individual needed to have special skills to use technology online. These findings are supported by Arubela and Jere, (2022:2); Tiwasing (2021:6) and Urvasi *et al.* (2017:2) who note that rural entrepreneurs lack the necessary technology skills that is fundamental to navigate and operate on online platforms. The Chi-square test findings show ( $X^2 = 399,255$ ;  $df = 4$ ;  $P = 0,001$ ) which denotes that this statement is significant and not due to chance.

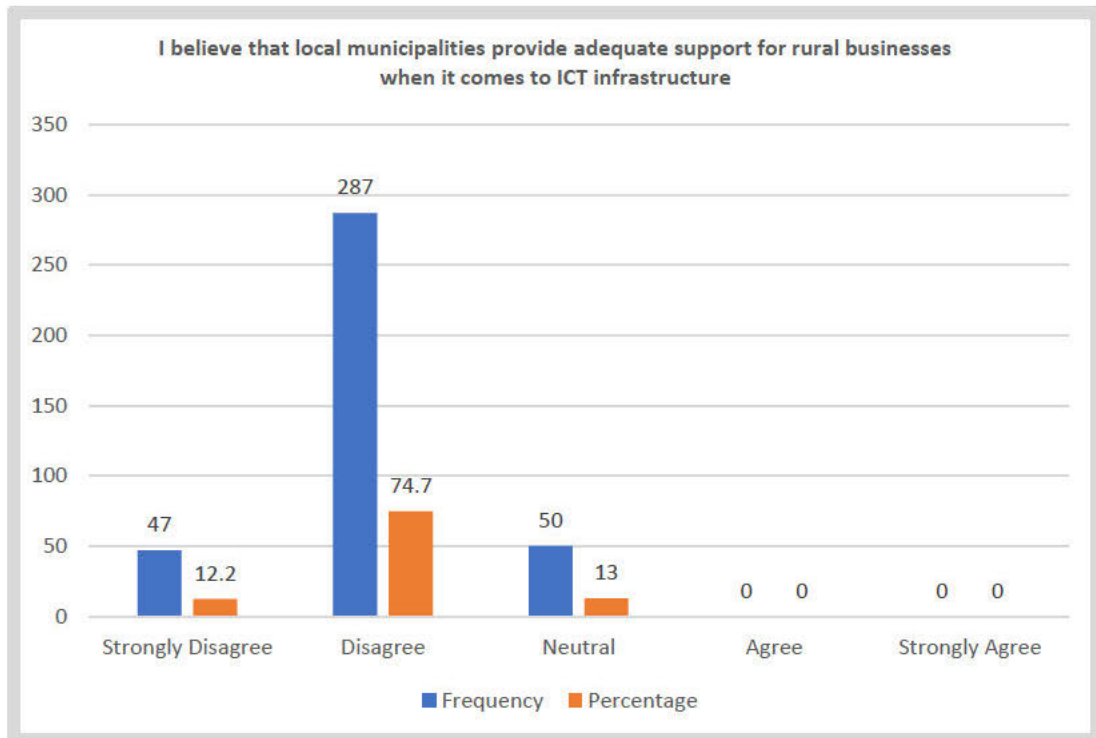
### 5.8.3.3 Access to finance affects the ability to grow our business



**Figure 5.26: Access to finance affects the ability to grow our business**

As depicted in Figure 5.26, a significant number of respondents 218 (56.8%) agreed and 71 (18.5%) strongly agreed that access to finance affects the ability to grow the business. Several the respondents 29 (7.6%) were neutral about the statement, while 51 (13.3%) disagreed and only 15 (3.9%) strongly disagreed with the statement. This indicates that 75.3% of the respondents were of the view that access to finance is a major challenge when wanting to grow the business. This finding is supported by Bomani and Derera (2018:153); Ndiaye *et al.* (2018: 270) and Panda, (2018:321) who assert that a lack of access to financial resources is the primary factor in the failure of many rural entrepreneurial endeavours. The Chi-square test findings show ( $X^2 = 348,187$ ;  $df = 4$ ;  $P = 0,001$ ) which denotes that this statement is significant and not due to chance.

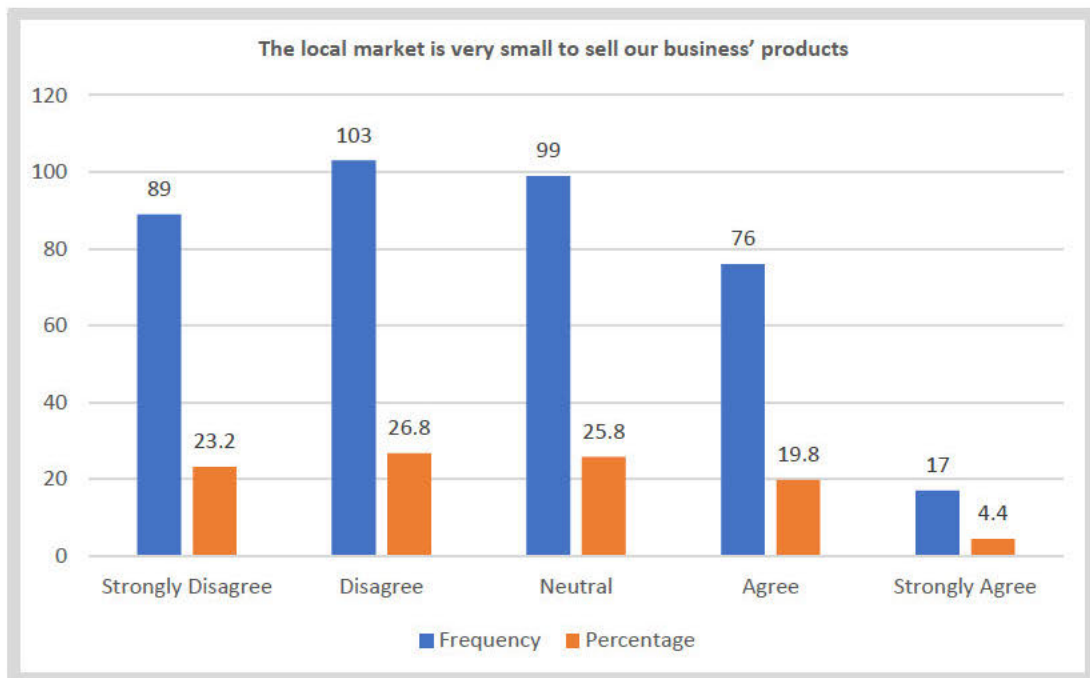
### 5.8.3.4 I believe that local municipalities provide adequate support for rural businesses when it comes to ICT infrastructure



**Figure 5.27: I believe that local municipalities provide adequate support for rural businesses when it comes to ICT infrastructure**

As depicted in Figure 5.27, a significant number of respondents 287 (74.7%) disagreed and 47 (12.2%) strongly disagreed that local municipalities provide adequate support for rural businesses when it comes to ICT infrastructure. A number of the respondents 50 (13%) were neutral about the statement. This indicates that 86.9% of the respondents were of the view that rural municipalities don't provide adequate ICT infrastructure. This finding is supported by Zhao and Lu (2020:1750) ; Bowen and Morris (2019: 76) and Salemink *et al.* (2017:365) who opine that many rural areas lack adequate ICT infrastructure. The Chi-square test findings show ( $X^2 = 296,297$ ;  $df = 2$ ;  $P = 0,001$ ) which denotes that this statement is significant and not due to chance.

### 5.8.3.5 The local market is very small to sell our business' products



**Figure 5.28: The local market is very small to sell our business ' products**

As depicted in Figure 5.28, the majority of the respondents 103 (26.8%) disagreed and 89 (23.2%) strongly disagreed that the size of the local market is too small to sell their products. A fair number of respondents, 99 (25.8%) were neutral, while 76 (19.8%) agreed and 17 (4.4%) strongly agreed with the statement. This indicates that 50% of the respondents were of the view that the size of the local market was a factor towards selling their products or services. The Chi-square test findings show ( $X^2 = 63,865$ ;  $df = 4$ ;  $P = 0,001$ ) which denotes that this statement is significant and not due to chance.

### 5.8.3.6 Factor Analysis

According to the results of the factor analysis, there are three subthemes identified:

- Access to Finance

- ICT Infrastructure
- Size of the local market

**Table 5.26: Rotated Component Matrix**

Rotated Component Matrix <sup>a</sup>						
	Component					
	1	2	3	4	5	
Access to finance affects the ability to grow our business	0.074	-0.042	-0.017	0.123	0.785	D13
I believe that local municipalities provide adequate support for rural businesses when it comes to ICT infrastructure	0.030	0.133	0.533	-0.499	0.054	D14
The local market is very small to sell our business' products	0.084	-0.120	0.141	0.619	-0.029	D15

Source: Primary Data

### 5.8.3.6.1 Access to Finance

The theme of access to finance pertaining to the statement “Access to finance affects the ability to grow our business” shows a high level of respondents who agreed, 218 (56.8%) and 71 (18.5%) who strongly agreed. This finding shows that 289 (75.3%) of all respondents concur that the access to finance is one of the factors contributing to the use of modern technology among emerging entrepreneurs in rural KZN, which is depicted by a strong positive significance of 0.785. This finding is supported by extant literature on studies done on the challenges experienced by rural entrepreneurs (Ndiaye *et al.*, 2018: 270; Panda, 2018:321 and Mtisi *et al.*, 2017:186), who assert that obtaining access to finance is a major constraint towards the growth of rural

entrepreneurship and this is because entrepreneurs depend on financial resources to drive growth and leverage technological innovations.

#### **5.8.3.6.2 ICT Infrastructure**

The theme of ICT infrastructure pertaining to the statement “I believe that local municipalities provide adequate support for rural businesses when it comes to ICT infrastructure” shows a higher number of respondents who disagreed with this statement 287 (74.7%) and 47 (12.2%) who strongly disagreed. This finding shows that 334 (86.9%) of all the respondents agreed that the local municipality does not provide adequate ICT infrastructure, and this is a factor that contributes to the use of modern technology among emerging entrepreneurs in the rural KZN.

#### **5.8.3.6.3 Size of the local market**

The theme of the size of the local market pertaining to the statement “The local market is very small to sell our business’ products” shows the number of respondents who agreed with this statement 76 (19.8%) and 17 (4.4%) who strongly agreed. A fair number of respondents were neutral 99 (25.8%). This finding shows that respondents think that the size of the local market was a factor that contributed to the use of modern technology among emerging entrepreneurs in the rural KZN. According to Mtisi, Dube, and Dube (2017:186), low population densities combined with low disposable income have a direct influence on rural enterprises. This is because the lack of demand for the goods and services offered by the rural business is a fundamental restriction that impacts the rural businesses’ capacity to continue functioning.

### 5.8.3.7 Crosstabulations

To evaluate whether there was a statistically significant association between the variables, a Chi-square test of independence was carried out. The outcomes are presented in the tables below:

#### 5.8.3.7.1 Access to finance affects the ability to grow our business \* How is the business operated in terms of infrastructure?

**Table 5.27a: Access to finance affects the ability to grow our business \* How is the business operated in terms of infrastructure?**

Crosstab									
		How is the business operated in terms of infrastructure?							Total
		Residential premise such as garage/outbuilding etc	Street corner or pavement or tuck shop	Stall/table/ container in a designated trading area	Door to door selling	Car/truck or any other form of transport method	Online-Facebook marketplace/WhatsApp/Telesales/Instagram		
Access to finance affects the ability to grow our business	Strongly Disagree	Count	4	4	2	3	2	0	15
		% within How is the business operated in terms of infrastructure?	3.0%	5.6%	2.0%	37.5%	5.0%	0.0%	3.9%
	Disagree	Count	10	17	15	0	7	2	51
		% within How is the business operated in terms of infrastructure?	7.5%	23.6%	14.7%	0.0%	17.5%	7.1%	13.3%
	Neutral	Count	10	6	10	0	2	1	29
		% within How is the business operated in terms of infrastructure?	7.5%	8.3%	9.8%	0.0%	5.0%	3.6%	7.6%

		operated in terms of infrastructure?							
	Agree	Count	96	24	56	0	22	20	218
		% within How is the business operated in terms of infrastructure?	71.6%	33.3%	54.9%	0.0%	55.0%	71.4%	56.8%
	Strongly Agree	Count	14	21	19	5	7	5	71
		% within How is the business operated in terms of infrastructure?	10.4%	29.2%	18.6%	62.5%	17.5%	17.9%	18.5%
Total		Count	134	72	102	8	40	28	384
		% within How is the business operated in terms of infrastructure?	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Primary Data

**Table 5.27b: Access to finance affects the ability to grow our business \* How is the business operated in terms of infrastructure?**

Chi-Square Tests									
	Value	df	Asymptotic Significance (2- sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Significance	99.9% Confidence Interval		Significance	99.9% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	75,548 <sup>a</sup>	20	0.000	<0.001 <sup>b</sup>	0.000	0.001			
Likelihood Ratio	65.614	20	0.000	<0.001 <sup>b</sup>	0.000	0.001			
Fisher-Freeman-Halton Exact Test	59.675			<0.001 <sup>b</sup>	0.000	0.001			
Linear-by-Linear Association	0,049 <sup>c</sup>	1	0.825	0,831 <sup>b</sup>	0.818	0.843	0,426 <sup>b</sup>	0.410	0.442
N of Valid Cases	384								

Source: Primary Data

The p-value between “Access to finance affects the ability to grow our business” and “How is the business operated in terms of infrastructure” is < 0.001. This indicates that there is a significant relationship between the variables highlighted. That is, businesses that operate out of residential premises or informal premises experience challenges to raise capital to afford better business premises or to grow the business.

**5.8.3.7.2 The local market is very small to sell our business’ products \*  
Sector**

**Table 5.28a: The local market is very small to sell our business' products \* Sector**

**Crosstab**

			Sector										Total
			Hair Salon / Barbershop/Beauty Parlour	Food and Beverage	Spaza Shop Owner	Car Wash	Auto Mechanic	Construction	Farm Produce	Trade and Accommodation	Transport and Communication	Other	
The local market is very small to sell our business' products	Strongly Disagree	Count	12	16	13	9	3	7	3	6	5	15	89
		% within Sector	19.7%	28.1%	23.2%	36.0%	15.8%	25.9%	17.6%	26.1%	14.3%	23.4%	23.2%
	Disagree	Count	22	14	10	9	4	8	3	4	13	16	103
		% within Sector	36.1%	24.6%	17.9%	36.0%	21.1%	29.6%	17.6%	17.4%	37.1%	25.0%	26.8%
	Neutral	Count	18	10	30	3	5	4	2	3	12	12	99
		% within Sector	29.5%	17.5%	53.6%	12.0%	26.3%	14.8%	11.8%	13.0%	34.3%	18.8%	25.8%
	Agree	Count	7	12	2	4	6	8	4	10	5	18	76
		% within Sector	11.5%	21.1%	3.6%	16.0%	31.6%	29.6%	23.5%	43.5%	14.3%	28.1%	19.8%
	Strongly Agree	Count	2	5	1	0	1	0	5	0	0	3	17
		% within Sector	3.3%	8.8%	1.8%	0.0%	5.3%	0.0%	29.4%	0.0%	0.0%	4.7%	4.4%
Total	Count	61	57	56	25	19	27	17	23	35	64	384	
	% within Sector	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Source: Primary Data

**Table 5.28b: The local market is very small to sell our business' products \*  
Sector**

Chi-Square Tests									
	Value	df	Asymptotic Significance (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Significance	99.9% Confidence Interval		Significance	99.9% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	93,234 <sup>a</sup>	36	0.000	<0.001 <sup>b</sup>	0.000	0.001			
Likelihood Ratio	83.843	36	0.000	<0.001 <sup>b</sup>	0.000	0.000			
Fisher-Freeman-Halton Exact Test	75.009			<0.001 <sup>b</sup>	0.000	0.000			
Linear-by-Linear Association	2,170 <sup>c</sup>	1	0.141	0,145 <sup>b</sup>	0.134	0.157	0,072 <sup>b</sup>	0.063	0.081
N of Valid Cases	384								

Source: Primary Data

The p-value between “The local market is very small to sell our business’ products” and “Sector” is < 0.001. This indicates that there is a significant relationship between the variables highlighted. That is, the sector that the respondent operates the business in, did play a significant role in terms of how the size of the local market affects their business operations. It is noted that service businesses had a high level of agreement with the statement.

### Conclusion to Objective 3

The summation of objective 3 shows that high broadband prices, lack of technology skills, access to finance, ICT infrastructure and the size of the local market are some of the factors that affect the use of modern technology among emerging entrepreneurs

in rural KZN. According to the literature review analysis for rural businesses, this observation is implicit from the study findings as well.

#### **5.8.4 Objective 4: To ascertain the characteristics such as attitudes and opinions of the emerging entrepreneur towards using modern technology in the rural KwaZulu Natal Province**

The primary objective of this section was to discern the characteristics such as attitudes and opinions of the emerging entrepreneur towards using modern technology in rural KZN. This section endeavours to address objective 4 of this study and the following statements were taken from the primary questionnaire and used as the basis for this section's discussion of the findings regarding the aforementioned objective:

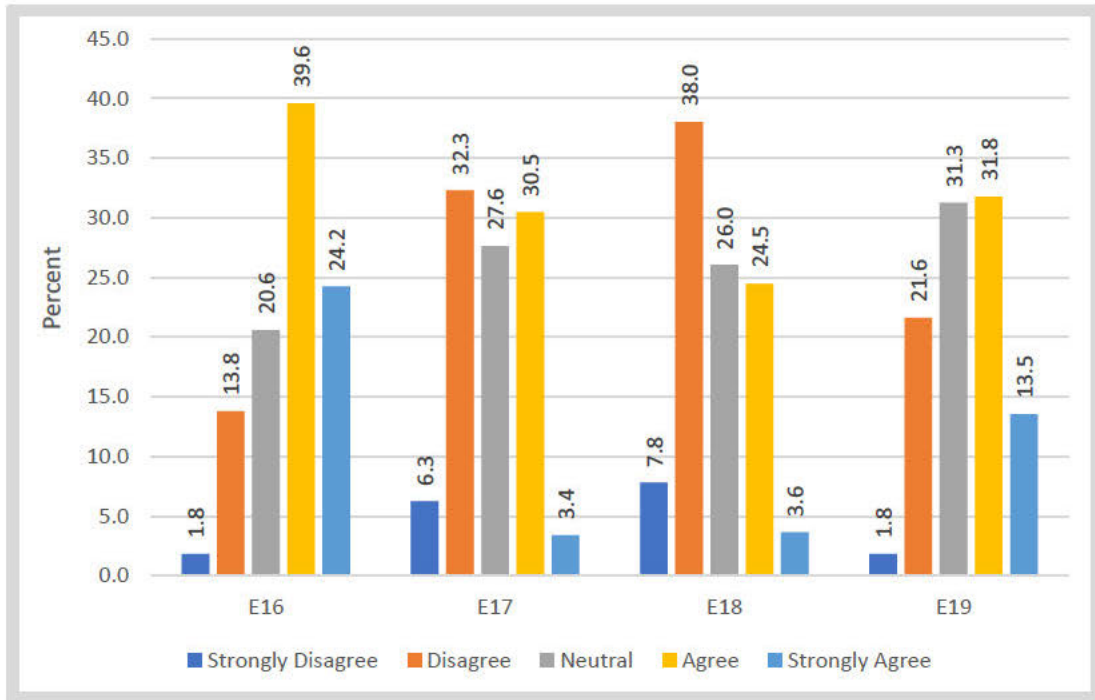
- Does an entrepreneur's leadership characteristics affect the operation of a local/national SMME?
- Does the lack of entrepreneurial and management skills affect the operation of a local/national SMME?
- Does the lack of technical skills affect an entrepreneur's ability to communicate effectively?
- As the business climate changes, an entrepreneur must adapt the business strategy to fulfil the growth goals of the business.

Table 5.29 below summarises the scoring patterns:

**Table 5.29: Characteristics of the emerging entrepreneur**

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
An entrepreneur's leadership characteristics affects the operation of a local/national SMME	E16	7	1.8 %	53	13.8 %	79	20.6 %	152	39.6 %	93	24.2 %	< 0.001
The lack of entrepreneurial and management skills affects the operation of a local/national SMME	E17	24	6.3 %	124	32.3 %	106	27.6 %	117	30.5 %	13	3.4%	< 0.001
The lack of technical skills affects an entrepreneur's ability to communicate effectively?	E18	30	7.8 %	146	38.0 %	100	26.0 %	94	24.5 %	14	3.6%	< 0.001
As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business	E19	7	1.8 %	83	21.6 %	120	31.3 %	122	31.8 %	52	13.5 %	< 0.001

Source: Primary Data

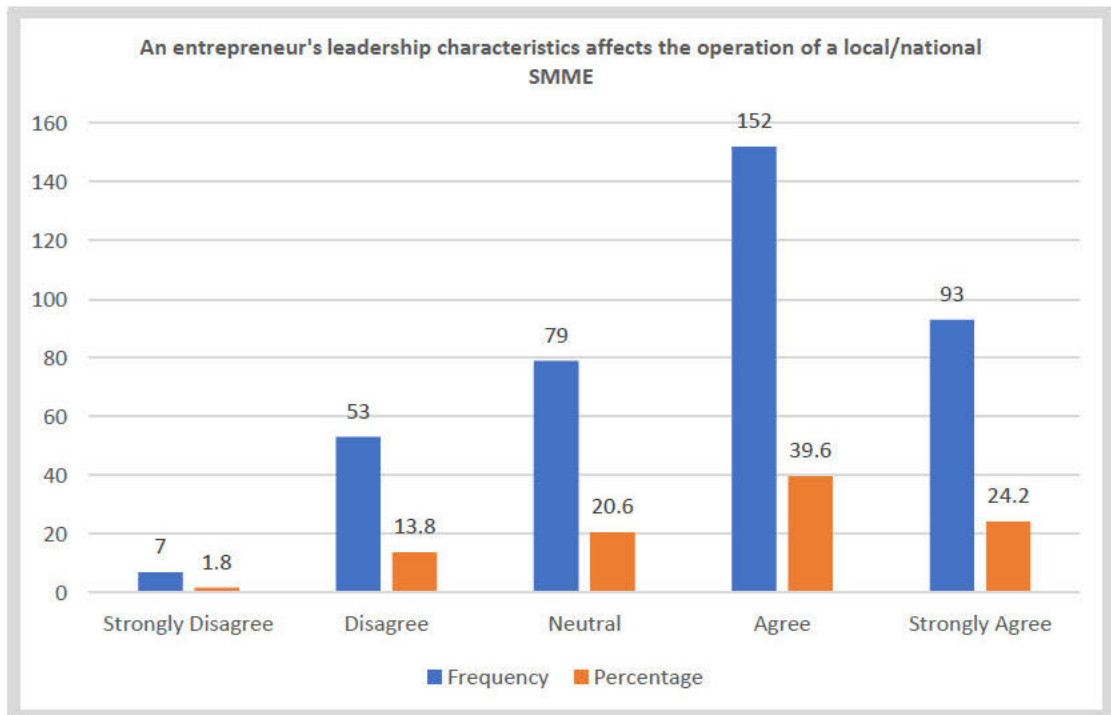


**Figure 5.29: Characteristics of the emerging entrepreneur**

The following patterns are observed. According to the findings of the study, two statements show significantly high levels of agreement and pertain to the statements: “An entrepreneur's leadership characteristics affects the operation of a local/national SMME” with 152 (39.6%) of the respondents who agreed and 93 (24.2%) who strongly agreed, followed by “As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business” with 122 (31.8%) of the respondents who agreed and 52 (13.5%) who strongly agreed.

Two statements show a higher number of respondents who disagree 146 (38%) and 30 (7.8%) strongly disagreed with the statement that the lack of technical skills affects an entrepreneur’s ability to communicate effectively. This sentiment is echoed with the following statement “The lack of entrepreneurial and management skills affects the operation of a local/national SMME” with 124 (32.3%) who agreed and 24 (6.3%) who strongly disagreed. A fair portion of respondents were neutral on all four statements. The significance of the differences is tested and shown in table 5.29.

#### 5.8.4.1 An entrepreneur's leadership characteristics affect the operation of a local/national SMME

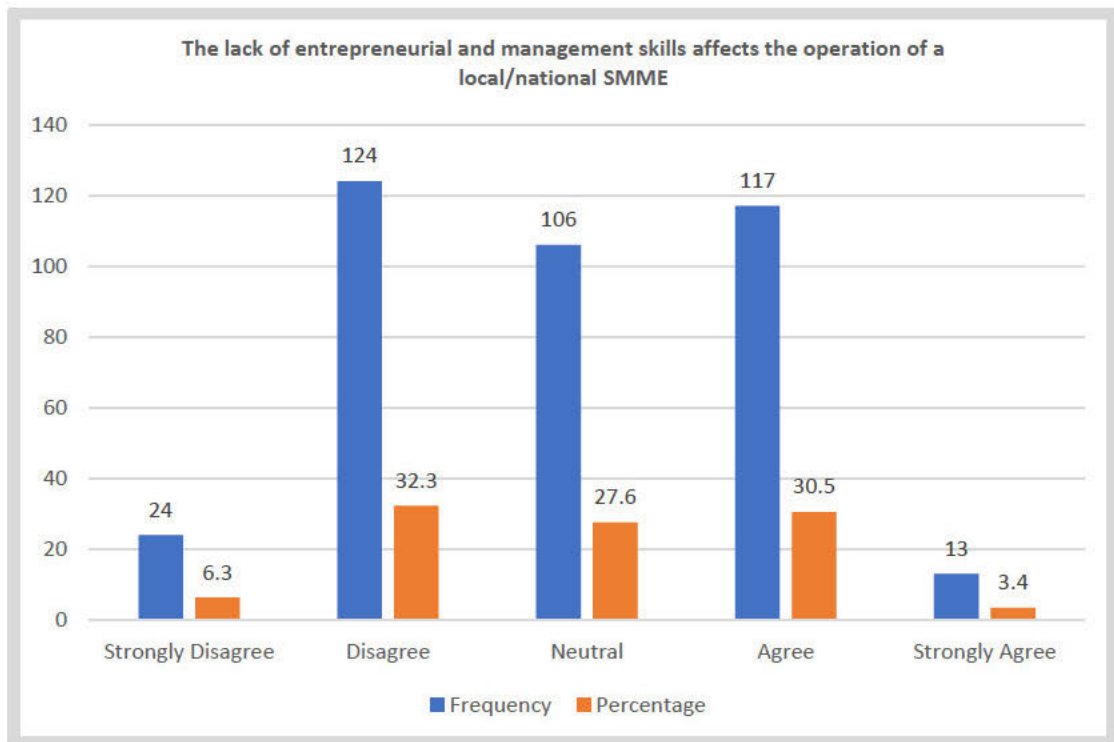


**Figure 5.30: An entrepreneur's leadership characteristics affect the operation of a local/national SMME**

As depicted in Figure 5.30, the majority of the respondents 152 (39.6%) agreed and 93 (43.2%) strongly agreed that an entrepreneur's leadership characteristics affects the operation of a local/national SMME. A fair number of respondents, 79 (20.6%) were neutral, while 53 (13.8%) disagreed and 7 (1.8%) strongly disagreed with the statement. This indicates that 63.8% of the respondents were of the view that an entrepreneur's leadership traits were instrumental towards operating the business. This finding is supported by the literature review according to Robles & Zarraga-Rodrigues (2015: 828), who posit that the endogenous factors of an entrepreneur are modelled on the premise of three integral competencies which encompass motivation and characteristics, social roles, and self-concepts. This view is also supported by Msamule *et al.* (2016: 253), who assert that people are motivated to act in a particular way by the dominant values and characteristics of their character.

The Chi-square test findings show ( $X^2 = 147,927$ ;  $df = 4$ ;  $P = 0,001$ ) which denotes that this statement is significant and not due to chance.

#### 5.8.4.2 The lack of entrepreneurial and management skills affects the operation of a local/national SMME

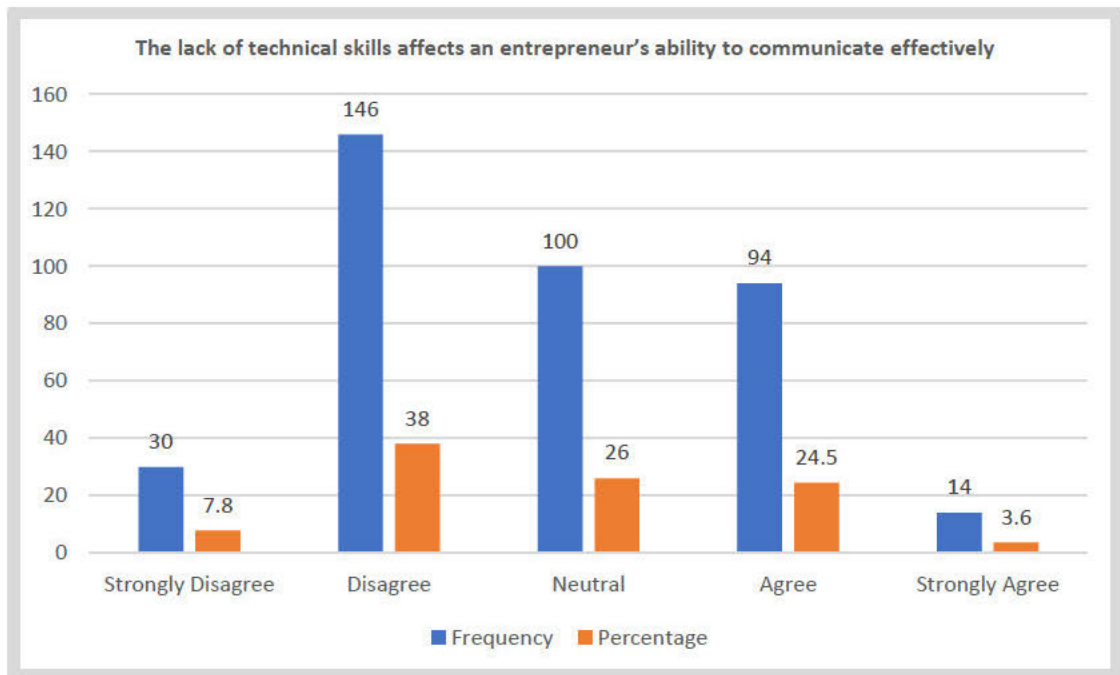


**Figure 5.31: The lack of entrepreneurial and management skills affects the operation of a local/national SMME**

As depicted in Figure 5.31, the majority of the respondents 124 (32.3%) disagreed and 24 (6.3%) strongly disagreed that the lack of entrepreneurial and management skills affects the operation of a local/national SMME. A fair number of respondents, 106 (27.6%) were neutral, while 117 (30.5%) agreed and 13 (3.4%) strongly agreed with the statement. This indicates that 33.9% of the respondents were of the view that the lack of entrepreneurial and management skills affects the operation of a local/national SMME.

Moos and Shambo (2018:3) assert that lack of proper managerial abilities as well as inadequate education and training has a detrimental impact on the operation of a SMME business. The Chi-square test findings show ( $X^2 = 150,453$ ;  $df = 4$ ;  $P = 0,001$ ) which denotes that this statement is significant and not due to chance.

#### 5.8.4.3 The lack of technical skills affects an entrepreneur's ability to communicate effectively

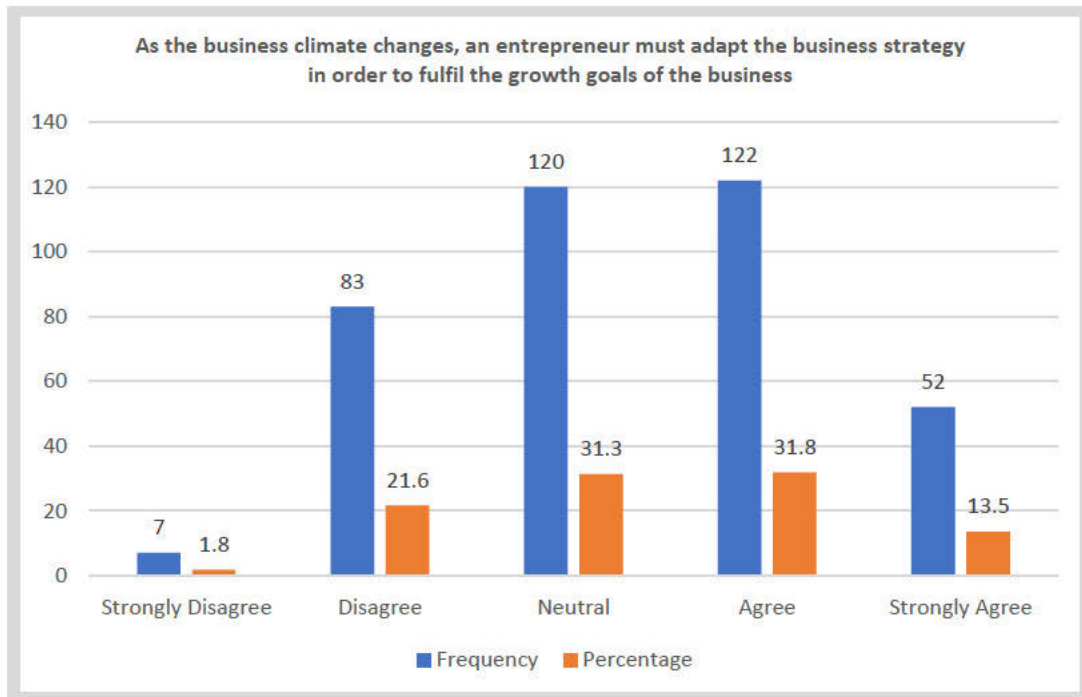


**Figure 5.32: The lack of technical skills affects an entrepreneur's ability to communicate effectively**

As depicted in Figure 5.32, the majority of the respondents 146 (38%) disagreed and 30 (7.82%) strongly disagreed that the lack of technical skills affects an entrepreneur's ability to communicate effectively. A fair number of respondents, 100 (26%) were neutral, while 94 (24.5%) agreed and 14 (3.6%) strongly agreed with the statement. This indicates that 45.8% of the respondents disagreed, whilst 28.1% agreed with the statement; the contrasting views of the respondents' means that they do not believe that technical skills impact an entrepreneur's ability to communicate effectively. The

Chi-square test findings show ( $X^2 = 153,083$ ;  $df = 4$ ;  $P = 0,001$ ) which denotes that this statement is significant and not due to chance.

#### 5.8.4.4 As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business



**Figure 5.33: As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business**

As depicted in Figure 5.33, the majority of the respondents 122 (31.8%) agreed and 52 (13.5%) strongly agreed that as the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business. A large number of respondents, 120 (31.3%) were neutral, while 83 (21.6%) disagreed and 7 (1.8%) strongly disagreed with the statement. This indicates that 45.3% of the respondents were of the view that the external business environment needs to be always scanned and the entrepreneur needs to adapt the business strategy to ensure that the growth goals of the business aren't fulfilled. This is supported by Rashid and Ratten

(2021:459), citing Teece (2012:1397), who assert that an entrepreneur needs to have the right competencies and capabilities to develop new products and respond effectively to shifting market conditions. The Chi-square test findings show ( $X^2 = 122,849$ ;  $df = 4$ ;  $P = 0,001$ ) which denotes that this statement is significant and not due to chance.

#### 5.8.4.5 Factor Analysis

According to the results of the factor analysis, there are three subthemes identified:

- Entrepreneurial characteristics that affect leadership.
- Managerial and entrepreneurial skills.
- External environmental factors.

**Table 5.30: Rotated Component Matrix<sup>a</sup>**

Rotated Component Matrix <sup>a</sup>						
	Component					
	1	2	3	4	5	
An entrepreneur's leadership characteristics affects the operation of a local/national SMME	-0.025	0.802	-0.016	-0.080	0.068	E16
The lack of entrepreneurial and management skills affects the operation of a local/national SMME	-0.028	0.435	0.246	0.459	0.205	E17
The lack of technical skills affects an entrepreneur's ability to communicate effectively?	0.260	0.415	0.188	0.102	0.076	E18
As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business	0.189	0.503	0.045	-0.016	0.625	E19

Source: Primary Data

#### **5.8.4.5.1 Entrepreneurial characteristics that affect leadership**

The theme of entrepreneurial characteristics that affect leadership pertaining to the statement “An entrepreneur's leadership characteristics affects the operation of a local/national SMME” shows a higher level of respondents who agreed 152 (39.6%) and 93 (24.2%) who strongly agree. This finding shows that 245 (63.8%) of all respondents concur that an entrepreneur's leadership characteristics affects the operation of a local/national SMME, with a strong positive significance of 0.802.

This finding is supported by Mohsin *et al.* (2017:89) and Ataei *et al.*, (2020:187) who postulated that an entrepreneur's leadership abilities is imperative as they need to have the ability to promote the efficient use of organizational resources, boost the effectiveness of enterprises, and assist businesses in achieving a long-term competitive edge. The entrepreneurial spirit and leadership abilities of a company's owners and management, along with their talent, energy, and skills, are critical to the success of a small, micro, and medium enterprise (SMME) operating in an uncertain environment (Dabić *et al.*, 2021:685 and Dermartini and Beretta, 2020:289).

The statement: “The lack of technical skills affects an entrepreneur's ability to communicate effectively” reflects as 45.8%, which implies that the respondents do not believe that a lack of technical skills should impede the entrepreneur's ability to communicate effectively. Soft skills such as leadership, interpersonal relations, communication, and the ability to solve problems are seen as instrumental towards employee satisfaction (Tem, Kuroda and Tang, 2020:1).

#### **5.8.4.5.2 Managerial and entrepreneurial skills**

The theme of managerial and entrepreneurial skills pertaining to the statement: “The lack of entrepreneurial and management skills affects the operation of a local/national SMME” shows a number of respondents who agreed 117 (30.5%) and 13 (3.4%) who strongly agreed. This finding shows that 130 (33.9%) of all respondents concur that

an entrepreneur's managerial skills affected the operation of a local/national SMME, with a moderate score of 0.459. This indicates that the respondents' opinions regarding this remark were inconsistent. According to Dabic *et al.* (2021:685), managerial knowledge and skills is a necessity to understand the business landscape and foster an environment that is conducive to the creativity and success of the business.

#### **5.8.4.5.3 Environmental factors**

The theme of external environmental factors that affect leadership pertaining to the statements: “As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business” shows a high level of respondents who agreed 122 (31.8%) and 52 (13.5%) who strongly agreed. This finding shows that 45.3% of all respondents concur that the environmental factors influence the business and the growth strategy to remain operational and competitive, with a strong positive significance of 0.625. This finding is supported by Zhao and Lu, (2020:1750) and Li, Westlund and Liu (2019:136) who proclaimed that many rural areas continue to fall behind due to geography, infrastructure, and a poor economic base, all of which are aspects that are typically linked with rural poverty. These external variables, when added to the socio-economic circumstances of rural areas, namely poverty, influence the ability of SMMEs to remain in business and have a negative influence on economic expansion (Li *et al.*, 2019:136). It is consequently vital for entrepreneurs to understand the wider business environment in order to be able to develop and supply products that are needed and sought after by consumers. Since this will increase both sales figures and the amount of revenue received, it is essential that entrepreneurs understand the larger business environment.

### 5.8.4.6 Crosstabulations

To evaluate whether or not there was a statistically significant association between the variables, a Chi-square test of independence was carried out. The outcomes are presented in the tables below:

#### 5.8.4.6.1 An entrepreneur's leadership characteristics affects the operation of a local/national SMME \* Ownership structure of the business

**Table 5.31a: An entrepreneur's leadership characteristics affects the operation of a local/national SMME \* Ownership structure of the business**

			Ownership structure of the business				Total
			Sole proprietor/ Family Business	Partnership Business	Close Corporation	Other	
An entrepreneur's leadership characteristics affects the operation of a local/national SMME	Strongly Disagree	Count	2	5	0	0	7
		% within Ownership structure of the business	1.4%	3.7%	0.0%	0.0%	1.8%
	Disagree	Count	15	13	8	17	53
		% within Ownership structure of the business	10.3%	9.6%	27.6%	22.7%	13.8%
	Neutral	Count	22	29	7	21	79
		% within Ownership structure of the business	15.2%	21.5%	24.1%	28.0%	20.6%
	Agree	Count	54	53	14	31	152
		% within Ownership structure of the business	37.2%	39.3%	48.3%	41.3%	39.6%
	Strongly Agree	Count	52	35	0	6	93
		% within Ownership structure of the business	35.9%	25.9%	0.0%	8.0%	24.2%
	Total	Count	145	135	29	75	384
		% within Ownership structure of the business	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Primary Data

**Table 5.31b: An entrepreneur's leadership characteristics affects the operation of a local/national SMME \* Ownership structure of the business**

Chi-Square Tests									
	Value	df	Asymptotic Significance (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Significance	99.9% Confidence Interval		Significance	99.9% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	44,457 <sup>a</sup>	12	0.000	<0.001 <sup>b</sup>	0.000	0.001			
Likelihood Ratio	53.287	12	0.000	<0.001 <sup>b</sup>	0.000	0.001			
Fisher-Freeman-Halton Exact Test	47.084			<0.001 <sup>b</sup>	0.000	0.001			
Linear-by-Linear Association	21,666 <sup>c</sup>	1	0.000	<0.001 <sup>b</sup>	0.000	0.000	<0.001 <sup>b</sup>	0.000	0.000
N of Valid Cases	384								

Source: Primary Data

The p-value between “An entrepreneur's leadership characteristics affects the operation of a local/national SMME” and “Ownership structure of the business” is < 0.001. This indicates that there is a significant relationship between the variables highlighted. That is, the ownership structure of the business did play a significant role in terms of respondents believing that an entrepreneurs leadership traits are necessary to sustain and grow the business.

**5.8.4.6.2 As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business \* Highest qualification**

**Table 5.32a: As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business \* Highest qualification**

**Crosstab**

			Highest qualification					Total
			Primary Schooling	Secondary Schooling	Matric	Diploma/Bachelor's Degree	Honour's Degree	
As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business	Strongly Disagree	Count	0	4	3	0	0	7
		% within Highest qualification	0.0%	4.6%	1.5%	0.0%	0.0%	1.8%
	Disagree	Count	4	18	52	7	2	83
		% within Highest qualification	25.0%	20.7%	25.6%	9.3%	66.7%	21.6%
	Neutral	Count	0	28	73	18	1	120
		% within Highest qualification	0.0%	32.2%	36.0%	24.0%	33.3%	31.3%
	Agree	Count	10	25	46	41	0	122
		% within Highest qualification	62.5%	28.7%	22.7%	54.7%	0.0%	31.8%
	Strongly Agree	Count	2	12	29	9	0	52
		% within Highest qualification	12.5%	13.8%	14.3%	12.0%	0.0%	13.5%
	Total	Count	16	87	203	75	3	384
		% within Highest qualification	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Primary Data

**Table 5.32b: As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business \* Highest qualification**

Chi-Square Tests									
	Value	df	Asymptotic Significance (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Significance	99.9% Confidence Interval		Significance	99.9% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	47,203 <sup>a</sup>	16	0.000	0,002 <sup>b</sup>	0.000	0.003			
Likelihood Ratio	51.889	16	0.000	<0.001 <sup>b</sup>	0.000	0.001			
Fisher-Freeman-Halton Exact Test	46.409			<0.001 <sup>b</sup>	0.000	0.001			
Linear-by-Linear Association	1,298 <sup>c</sup>	1	0.255	0,260 <sup>b</sup>	0.245	0.274	0,133 <sup>b</sup>	0.122	0.144
N of Valid Cases	384								

Source: Primary Data

The p-value between “As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business” and “Highest qualification” is < 0.002. This indicates that there is a significant relationship between the variables highlighted. The findings suggest that the educational background of the participants had a notable influence on their perception of the statement. This is likely due to the fact that knowledge about environmental influences tends to be more widely shared at advanced levels of education.

#### **Conclusion to Objective 4**

The summation of objective 4 shows that the entrepreneurial characteristics and leadership qualities, combined with the managerial skills and competencies does have an impact on the operation of a business. Further to this, it was surmised that the environmental factors are key determinants of how the business is managed and the

ability of the entrepreneur to scan the environment and adapt the structure of the business.

**5.8.5 Objective 5: To evaluate the awareness and knowledge about the advantages of modern technology being used as a business tool among emerging entrepreneurs in the rural KwaZulu Natal Province**

The primary objective of this section was to evaluate the awareness and knowledge about the advantages of modern technology being used as a business tool among the emerging entrepreneurs in rural KZN. This section endeavours to address objective 5 of this study and the following statements were taken from the primary questionnaire and used as the basis for this section's discussion of the findings regarding the aforementioned objective:

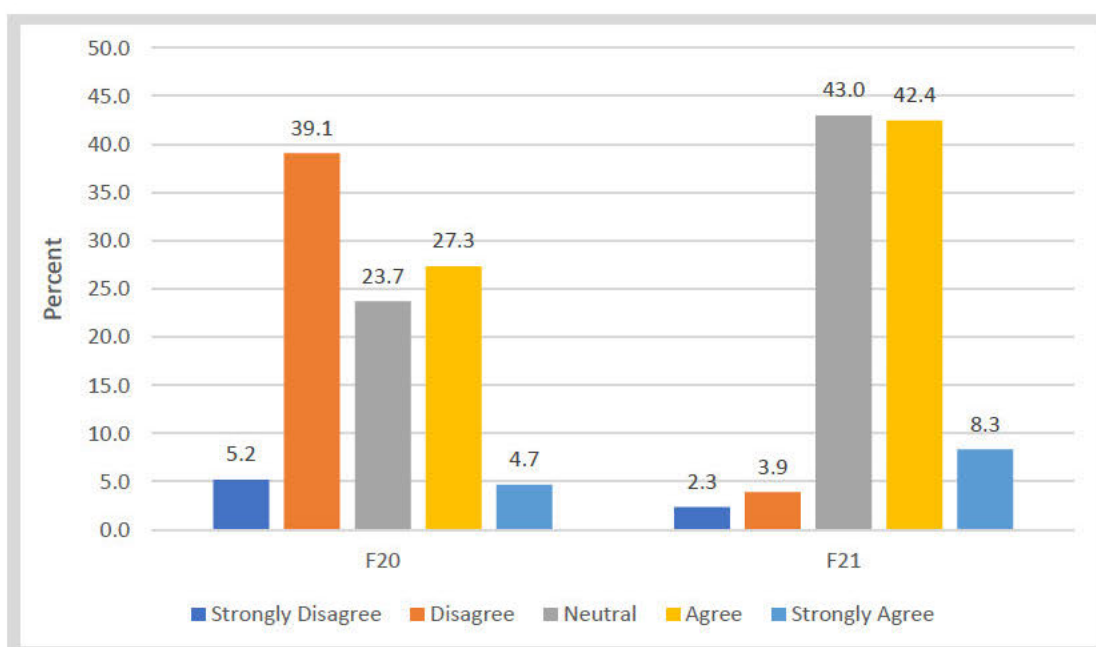
- Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones.
- Technology and online marketing can promote the rural local/national market.

The table below summarises the scoring patterns:

**Table 5.33: Advantages of modern technology being used as a business tool**

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones	F20	20	5.2%	150	39.1%	91	23.7%	105	27.3%	18	4.7%	< 0.001
Technology and online marketing can promote the rural local/national market	F21	9	2.3%	15	3.9%	165	43.0%	163	42.4%	32	8.3%	< 0.001

Source: Primary Data



**Figure 5.34: Advantages of modern technology being used as a business tool**

The following patterns are observed:

According to the findings of the study, “Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones” shows a significant number of respondents who disagreed with this statement, 150 (39.1%), followed by 20 (5.2%) who strongly disagreed. A number of respondents were neutral 91 (23.7%), while 105 (27.3%) agreed and 18 (4.7%) strongly agreed. The statement of “Technology and online marketing can promote the rural local/national market” show significantly high levels of agreement 163 (42.4%) who agreed and 32 (8.3%) who strongly agreed. A large number were neutral 165 (43%), followed by 15 (3.9%) who disagreed and 9 (2.3%) who strongly disagreed. The significance of the differences was tested and shown in the table.

#### 5.8.5.1 Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones

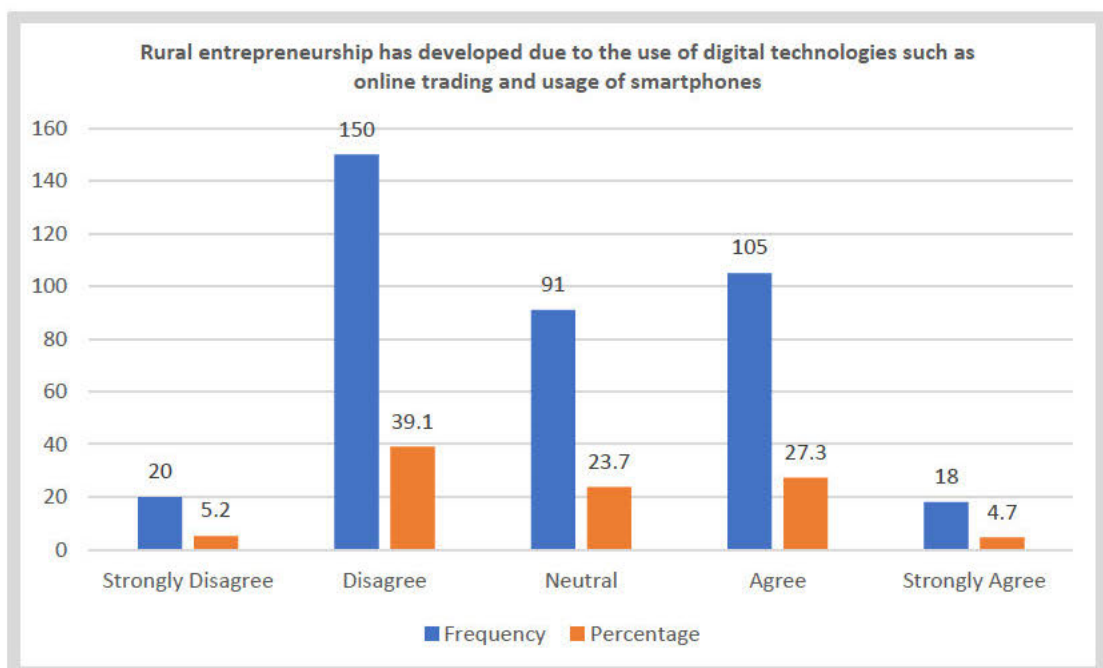
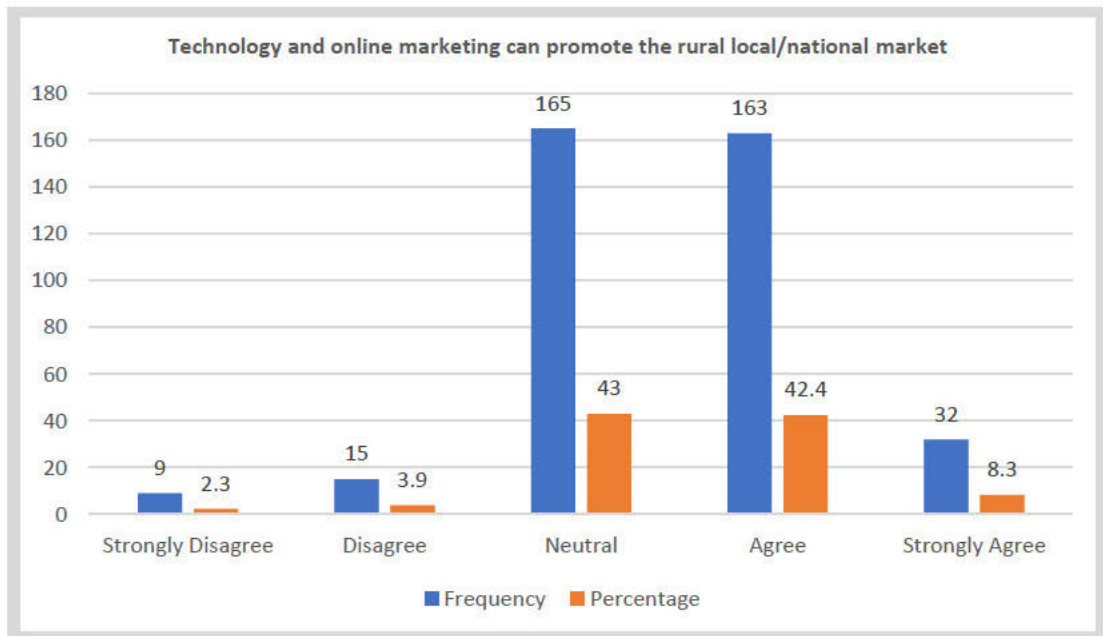


Figure 5.35: Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones

As depicted in Figure 5.35, the majority of the respondents 150 (39.1%) disagreed and 20 (5.2%) strongly disagreed that rural entrepreneurship has developed due to the use of smartphones and digital technologies. A fair number of respondents, 91 (23.7%) were neutral, while 105 (27.3%) agreed and 18 (4.7%) strongly agreed with the statement. This indicates that 44.3% of the respondents were of the view that modern technology has not advanced the state of entrepreneurship in rural KZN. The Chi-square test findings show ( $X^2 = 169,776$ ;  $df = 4$ ;  $P = 0,001$ ) which denotes that this statement is significant and not due to chance.

### 5.8.5.2 Technology and online marketing can promote the rural local/national market



**Figure 5.36: Technology and online marketing can promote the rural local/national market**

As depicted in Figure 5.36, the majority of the respondents were neutral 165 (43%), while a significant number of respondents 163 (42.4%) agreed and 32 (8.3%) strongly agreed that technology and online marketing can promote the rural market. A small number of respondents 15 (3.9%) disagreed while 9 (2.3%) strongly disagreed with the

statement. This indicates that 50.7% of the respondents were of the view that modern technology and online marketing can promote the rural market in KZNe.

### 5.8.5.3 Factor Analysis

According to the results of the factor analysis, there are two subthemes identified:

- Barriers to digital innovation
- Role of ICT for rural development

**Table 5.34: Rotated Component Matrix<sup>a</sup>**

Rotated Component Matrix <sup>a</sup>						
	Component					
	1	2	3	4	5	
Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones	0.173	0.640	-0.104	0.024	-0.140	F20
Technology and online marketing can promote the rural local/national market	0.262	0.200	0.056	0.571	0.170	F21

Source: Primary Data

#### 5.8.5.3.1 Barriers to digital innovation

The theme of barriers to digital innovation pertaining to the statement “Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones” shows a higher level of respondents who disagreed 150 (39.1%) and 20 (5.2%) who strongly disagreed. This finding shows that 170 (44.3%) of all respondents do not believe that rural entrepreneurship has developed significantly, with a positive significance of 0.640. This conclusion is supported by research from Abeysinghe and Malik (2021:21), Savira and Fahmi (2020: 2) and Moyo and Tengeh (2021:4), who hypothesize that while the digitalization of business processes or the application of various technologies has opened up new doors for

people living in rural areas, rural entrepreneurship has not yet fully, utilized the opportunities presented by digital technologies.

#### **5.8.5.3.2 Role of ICT for rural development**

The theme of the role of ICT for rural development pertaining to the statement “Technology and online marketing can promote the rural local/national market” shows a high level of respondents who agree 163 (42.4%) and 32 (8.3%) who strongly disagreed. This finding shows that 195 (50.7%) of all respondents are of the view that technology can promote the local rural market, with a moderate positive significance of 0.571. The findings of this study lend credence to those of Mtshali and Jili (2022:399) and Ndlovu, Thamaga-Chitja and Ojo (2021:5) who recognized that those rural entrepreneurs that adopt new technology and innovations because they are innovative, risk-takers, and have better access to information, and believe modern technology, have the potential to drive the growth of businesses.

#### **5.8.5.3.3 Crosstabulations**

To evaluate whether there was a statistically significant association between the variables, a Chi-square test of independence was carried out. The outcomes are presented in the tables below:

##### **5.8.5.3.3.1 Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones \* Ownership Structure of the Business**

**Table 5.35a: Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones \* Ownership Structure of the Business**

Crosstab

			Ownership structure of the business				Total
			Sole proprietor/ Family Business	Partnership Business	Close Corporation	Other	
Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones	Strongly Disagree	Count	11	3	2	4	20
		% within Ownership structure of the business	7.6%	2.2%	6.9%	5.3%	5.2%
	Disagree	Count	31	47	20	52	150
		% within Ownership structure of the business	21.4%	34.8%	69.0%	69.3%	39.1%
	Neutral	Count	48	31	3	9	91
		% within Ownership structure of the business	33.1%	23.0%	10.3%	12.0%	23.7%
	Agree	Count	48	46	4	7	105
		% within Ownership structure of the business	33.1%	34.1%	13.8%	9.3%	27.3%
	Strongly Agree	Count	7	8	0	3	18
		% within Ownership structure of the business	4.8%	5.9%	0.0%	4.0%	4.7%
	Total	Count	145	135	29	75	384
		% within Ownership structure of the business	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Primary Data

**Table 5.35b: Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones \* Ownership Structure of the Business**

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Significance	99.9% Confidence Interval		Significance	99.9% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	69,188 <sup>a</sup>	12	0.000	<0.001 <sup>b</sup>	0.000	0.001			
Likelihood Ratio	72.890	12	0.000	<0.001 <sup>b</sup>	0.000	0.001			
Fisher-Freeman-Halton Exact Test	68.987			<0.001 <sup>b</sup>	0.000	0.001			
Linear-by-Linear Association	28,572 <sup>c</sup>	1	0.000	<0.001 <sup>b</sup>	0.000	0.001	<0.001 <sup>b</sup>	0.000	0.001
N of Valid Cases	384								

Source: Primary Data

The p-value between “Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones” and “Ownership Structure of the Business” is  $< 0.001$ . This indicates that there is a significant relationship between the variables highlighted. This means that the ownership structure of the business did play a significant role in terms of the respondents' belief that rural entrepreneurship has developed as a direct result of the use of modern technologies such as conducting business online and the use of mobile phones.

#### 5.8.5.3.3.2 Technology and online marketing can promote the rural local/national market \* Highest qualification

**Table 5.36a: Technology and online marketing can promote the rural local/national market \* Highest qualification**

Crosstab

			Highest qualification					Total
			Primary Schooling	Secondary Schooling	Matric	Diploma/Bachelor's Degree	Honour's Degree	
Technology and online marketing can promote the rural local/national market	Strongly Disagree	Count	3	3	2	1	0	9
		% within Highest qualification	18.8%	3.4%	1.0%	1.3%	0.0%	2.3%
	Disagree	Count	0	6	7	2	0	15
		% within Highest qualification	0.0%	6.9%	3.4%	2.7%	0.0%	3.9%
	Neutral	Count	8	49	90	17	1	165
		% within Highest qualification	50.0%	56.3%	44.3%	22.7%	33.3%	43.0%
	Agree	Count	4	23	88	46	2	163
		% within Highest qualification	25.0%	26.4%	43.3%	61.3%	66.7%	42.4%
	Strongly Agree	Count	1	6	16	9	0	32
		% within Highest qualification	6.3%	6.9%	7.9%	12.0%	0.0%	8.3%
	Total	Count	16	87	203	75	3	384
		% within Highest qualification	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Primary Data

**Table 5.36b: Technology and online marketing can promote the rural local/national market \* Highest qualification**

Chi-Square Tests									
	Value	df	Asymptotic Significance (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Significance	99.9% Confidence Interval		Significance	99.9% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	50,068 <sup>a</sup>	16	0.000	0,003 <sup>b</sup>	0.001	0.005			
Likelihood Ratio	41.356	16	0.000	<0.001 <sup>b</sup>	0.000	0.001			
Fisher-Freeman-Halton Exact Test	41.922			<0.001 <sup>b</sup>	0.000	0.000			
Linear-by-Linear Association	24,285 <sup>c</sup>	1	0.000	<0.001 <sup>b</sup>	0.000	0.001	<0.001 <sup>b</sup>	0.000	0.001
N of Valid Cases	384								

Source: Primary Data

The p-value between “Technology and online marketing can promote the rural local/national market” and “Highest qualification” is < 0.003. This indicates that there is a significant relationship between the variables highlighted. That is, the level of education of the respondent was a significant factor in determining the degree to which they believed that technology and online marketing could help the rural local or national market.

### Conclusion to Objective 5

The summation of objective 5 shows that the rural entrepreneurs are aware that modern technology has the ability to grow and develop rural businesses, whilst also noting that the various factors such as infrastructure, access to finance and lack of technical skills

have slowed down the rate of adoption of technology and the growth of rural entrepreneurship.

## **5.9 SUMMARY**

The examination of graphical representations of the obtained results was the primary emphasis of this chapter. Additionally, the analysis of frequency graphs and Chi-square tests to determine whether a good fit existed, and cross-tabulations was also the focus of this chapter. Significant results were obtained by using the Chi-squared tests. The finding of this study was also integrated with the current literature on the various issues discussed. The discussion and interpretation of the outcomes of this study will be the primary emphasis of the chapter six that follows.

## CHAPTER SIX: FINDINGS AND DISCUSSION

### 6.1 INTRODUCTION

This section discusses the key findings of the data analysis and aligns these findings to the literature review as presented previously. As noted in Chapter two and Chapter four, the following are the sub-objectives derived from the main objective:

The primary objective of the study was to investigate the influence of modern technology on emerging entrepreneurs in rural KZN. In order to accomplish this purpose, the research objectives listed below were developed:

- Sub-objective 1: To examine the use of modern technology among emerging entrepreneurs in the rural KwaZulu-Natal Province.
- Sub-objective 2: To assess the implications of modern technology on emerging entrepreneurs in the rural KwaZulu-Natal Province.
- Sub-objective 3: To evaluate the factors contributing to the use of modern technology among emerging entrepreneurs in the rural KwaZulu-Natal Province.
- Sub-objective 4: To ascertain the characteristics such as attitudes and opinions of the emerging entrepreneur towards using modern technology in the rural KwaZulu-Natal Province.
- Sub-objective 5: To evaluate the awareness and knowledge about the advantages of modern technology being used as a business tool among emerging rural entrepreneurs in the rural KwaZulu-Natal Province.

## **6.2 DISCUSSION OF FINDINGS IN TERMS OF RESEARCH OBJECTIVES OF THE STUDY**

The findings of the study are discussed in the following section in terms of the aforementioned research objectives based on the questions that are pertinent to the investigation.

### **6.2.1 Key findings on Objective 1**

**To examine the use of modern technology among emerging entrepreneurs in the rural KwaZulu Natal Province**

#### ***Modern technology usage***

The findings show that although 73.45% of the respondents owned a mobile device, relatively few of them employed the technological tools to promote their businesses. Arubela and Jere (2022:2), in their research on examining digital difficulties in rural parts of South Africa, discovered that the majority of people living in rural areas are not knowledgeable about technology, and the primary use of mobile phones is to make voice calls, send SMS, and browse social media sites. This argument is supported by Morris, Morris, and Bowen (2022: 370), who point out that in spite of the fact that certain pockets of rural communities having access to suitable infrastructure and technology devices, these resources are not being utilized to their maximum potential due to a lack of digital skills and the fact that many devices lack the appropriate software.

The literature review supports this rhetoric, as noted by Patel and Chavda (2013:33) and Sitharam and Hoque (2016:278) who opined that the the low levels of technological education and the unwillingness of the rural people to embrace technology further exacerbate the viability of a successful business in rural areas. The literature review states that there is a significant gap in digital literacy in rural

communities as a result of the digital divide. Due to the limited availability of training programmes and support for the development of digital skills, many rural entrepreneurs struggle to adapt to and make good use of technology.

### ***Lack of infrastructure***

Many of the respondents claimed that although they had access to a smartphone or other technical device, they did not have broadband in their areas and did not make use of modern technology to advertise their business. This assertion is supported by the findings of this study, which showed that 66.9% of respondents acknowledged that inadequate infrastructure has an effect on the expansion of their businesses.

According to Lekhanya (2018:38); Salemink *et al.* (2017:360); Philip *et al.* (2017:387) and Townsend *et al.*, (2016:34), poor digital infrastructure and a lack of broadband connectivity is a crucial problem in rural places. Due to a lack of available network coverage, weak internet connections, and unreasonably high costs, owners of businesses in rural areas are unable to take full advantage of modern technology.

## **6.2.2 Key findings on Objective 2**

### **To assess the implications of modern technology on emerging entrepreneurs in the rural KwaZulu- Natal Province**

#### ***Innovation***

The introduction of modern technological capabilities serves as a primary motivator for innovation, and as a result, successful innovation is a prerequisite for achieving sustained business growth. The findings of the OECD (2018:20), indicated that successful entrepreneurship, innovation, and business growth depended on the increased skill sets of educated individuals. Lenihan, McGuirk and Murphy (2019:1) opine that an educated and competent workforce is an important component in creativity. They reasoned that this is the case because the level of innovation is

incremental, and because it typically offers guidance for the future of the company, its role, adaptation, distribution of technology skills, and company change (Lenihan *et al.*, 2019:2). According to the findings of this study, 45.1% of the respondents agreed that innovation is encouraged and supported in the business.

### ***ICT Adoption***

The literature review surmises that innovation, ICT adoption and lack of adequate training are factors that impact the ability of rural entrepreneurs' usage of modern technology. This theme highlights the aspect of the lack of ICT adoption in rural areas, which is supported by the literature review stating that there has been a lack of technological implementation among smaller businesses in rural areas (Arubela and Jere, 2022:3; Jaganathan *et al.*, 2018:3; Lekhanya, 2016:111 & Nkosana and Skinner, 2016:7).

It seems that there are challenges on both the supply and demand sides of the equation when it comes to the adoption of ICT in rural KZN. A shortage of ICT talent and inadequate technical infrastructure are two examples of variables that contribute to supply-side difficulties. Problems on the demand side include, for example, a lack of a need for information and communication technologies as well as knowledge of their benefits (Ritz *et al.*, 2019:56). The findings of this empirical study indicate that 72.1% of the respondents believed that individuals lack the necessary skills to use modern technology, therefore the ICT adoption rate will be very low.

### ***Lack of Training***

Due to restricted access to training programmes and support for the development of digital skills, many rural entrepreneurs struggle to successfully utilize technology and adapt to new technologies due to the fact that they have limited options for training. This finding is identified in the literature review by Obidile and Nwankwo, (2022:168); Jaganathan *et al.*, (2018:2); Lekhanya (2016:111) and Sitharam and Hoque (2016:278), who assert that the rural SMME's reluctance to adopt information and communications

technology can be linked to a lack of training and technological expertise. According to Jayadatta (2017:38), the challenge that the majority of rural business owners must overcome is a deficiency in their technical knowledge, and to ensure that facilities for training requirements and more relevant services do not have significant impacts on the growth of entrepreneurship in rural areas.

The effective utilization of modern technology necessitates a distinct skill set and comprehension of how to proficiently operate the relevant mobile phones or technological gadgets, as well as the subsequent programmes installed on those devices. It is possible that rural areas do not have enough people who possess the appropriate level of knowledge to manage and operate sophisticated technologies. This can be a big obstacle for rural businesses, both financially and in terms of the availability of trained employees.

This finding is identified in the empirical study which indicates that a significant number of respondents (72.1%) believed that employees are not skilled and cannot navigate online platforms, followed by 74.5%) who stated that employees are not trained to use modern technology in their business.

### **6.2.3 Key findings on Objective 3**

#### **To evaluate the factors contributing to the use of modern technology among emerging entrepreneurs in the rural KwaZulu Natal Province**

##### ***Access to finance***

This finding shows that 289 (75.3%) of all respondents concur that the access to finance is one of the factors contributing to the use of modern technology among emerging entrepreneurs in rural KZN, which is depicted by a strong positive significance of 0.785. This finding is supported by extant literature on studies done on the challenges experienced by rural entrepreneurs. Ndiaye *et al.* (2018: 270); Panda, (2018:321) and Mtisi *et al.* (2017:186) assert that obtaining access to finance is a major constraint towards the growth of rural entrepreneurship and this is because

entrepreneurs depend on financial resources to drive growth and leverage technological innovations. Rural entrepreneurs are managing the business using local resources and low cash.

### ***ICT Infrastructure***

The empirical findings demonstrate that 334 of the total respondents, or 86.9%, believe that the local municipality does not provide adequate ICT infrastructure. This is a factor that contributes to the usage of modern technology among business owners/managers in rural areas of the KZN. The literature review supports this finding and is espoused in studies done on factors affecting rural entrepreneurship.

According to Mamba and Isabirye (2015:136), the majority of information and communication technology (ICT) initiatives in rural townships typically fail as a result of inadequate administration, poorly designed rules, a lack of user involvement, and a lack of understanding of ICT. Rajendhiran and Masiyamoorthi (2016:79) assert that one of the primary challenges that rural businesses face is a lack of technology, which can be traced back to a degraded technological infrastructure, because many rural locations are too inaccessible to allow for the installation of cable and equipment, which results in inadequate network coverage.

### ***Size of the local market***

This research demonstrates that respondents in rural KZN believed that the size of the local market was a factor that led to the usage of modern technologies among emerging entrepreneurs. According to Mtisi, Dube, and Dube (2017:186), rural businesses are directly affected by low population densities, which, when paired with low levels of disposable income, have a negative impact on the market and the ability to grow the business. This is due to the fact that the absence of demand for the products and services provided by the rural company is a fundamental limitation that has an effect on the rural firm's ability to continue functioning normally. This further hinders their

ability to compete with their urban counterparts, who have access to modern technology as well as creative products and services (Suma and Hemalatha, 2022:36).

#### **6.2.4 Key findings on Objective 4**

##### **To ascertain the characteristics such as attitudes and opinions of the emerging entrepreneur towards using modern technology in the rural KwaZulu Natal Province**

###### *Entrepreneurial characteristics that affect leadership*

According to the findings of the empirical research, 63.8% of respondents believed the leadership characteristics of an entrepreneur were necessary to the functioning of the business. This conclusion is supported by the literature review according to Robles and Zarraga-Rodrigues (2015: 828), who argue that the endogenous elements of an entrepreneur are modelled on the premise of three integral competencies which comprise motivation and traits, social roles, and self-concepts.

This finding is supported by the literature review according to Robles and Zarraga-Rodrigues (2015: 828) and Msamule *et al.* (2016: 253), who claim that people are motivated to act in a specific way by the dominating values and features of their character. Barmon and Chakraborty (2013:82) argue that the entrepreneurial approach towards rural development acknowledges the pivotal role of entrepreneurship in fostering economic growth and development, with a specific focus on rural areas.

According to Aftab *et al.*, (2021:4), citing Durkin and Gunn (2016:65), entrepreneurial competences include characteristics such as the entrepreneurs' abilities, knowledge, and skills in order to achieve excellent company performance. The role that competences play in performance was explored by Mohsin, Halim, and Farhana (2017:89) who observed that entrepreneurial abilities have the ability to raise the efficiency with which organizational resources are used, to increase the effectiveness

of organizations, and to assist businesses in achieving a long-term advantage over their competitors.

In this regard, the findings of the current study agree with the literature in that it was found that the implementation of ICT adoption has a significant effect on innovative leadership and entrepreneurial competencies. This is demonstrated by the large number of respondents (63.8%), who concurred with the statement that entrepreneurial characteristics are integral when it comes to ICT adoption.

A significant number of respondents (45.8%) disagreed that the lack of technical skills affects an entrepreneur's ability to communicate effectively. This suggests that the respondents did not believe that an entrepreneur's ability to communicate effectively should be hindered by a lack of technical abilities. According to Tem, Kuroda, and Tang (2020:1), it is believed that "soft skills" such as leadership, interpersonal interactions, communication, and the ability to manage problems play a significant role in employee satisfaction and motivation.

### ***External factors***

According to the findings of this study 45.3% of all respondents agreed that environmental factors have an influence on the business and the growth plan to remain operational and competitive. This finding is corroborated by Zhao and Lu, (2020:1750) and Li, Westlund and Liu (2019:136), who state that many rural areas continue to fall behind due to geography, infrastructure, and a low economic base. These are all elements that are often related with rural poverty; therefore, this finding makes sense. When combined with the socio-economic circumstances of rural areas, including poverty, these external determinants influence the ability of SMMEs to remain in business and have a negative effect on economic expansion (Li *et al.*, 2019:136). It is necessary for business owners to have a solid comprehension of the wider business environment in order to be in a position to create and provide consumers with goods that satisfy their requirements and satisfy their desires. This finding indicates that access to finance, lack of infrastructure and skilled individuals are factors that affects rural entrepreneurship in KwaZulu- Natal.

### **6.2.5 Key findings on Objective 5**

#### **To evaluate the awareness and knowledge about the advantages of modern technology being used as a business tool among emerging rural entrepreneurs in the rural KwaZulu- Natal Province**

According to the findings from the data analysis, 44.3% of the respondents were of the view that modern technology has not advanced the state of entrepreneurship in rural KwaZulu-Natal. This finding is supported by the literature review; according to Belitski and Liversage (2019:65) propose that the inability of rural entrepreneurs to accept digital technology to produce value and enable quicker product commercialization continues to be a barrier for the growth of rural entrepreneurship.

According to Ritz *et al.* (2019:56), demand-side challenges include people not having a need for information and communication technologies and not being aware of their benefits. According to the empirical findings of the current study, 50.7% of the respondents, believed that the rural market in KwaZulu-Natal could be promoted with the help of modern technologies and online marketing.

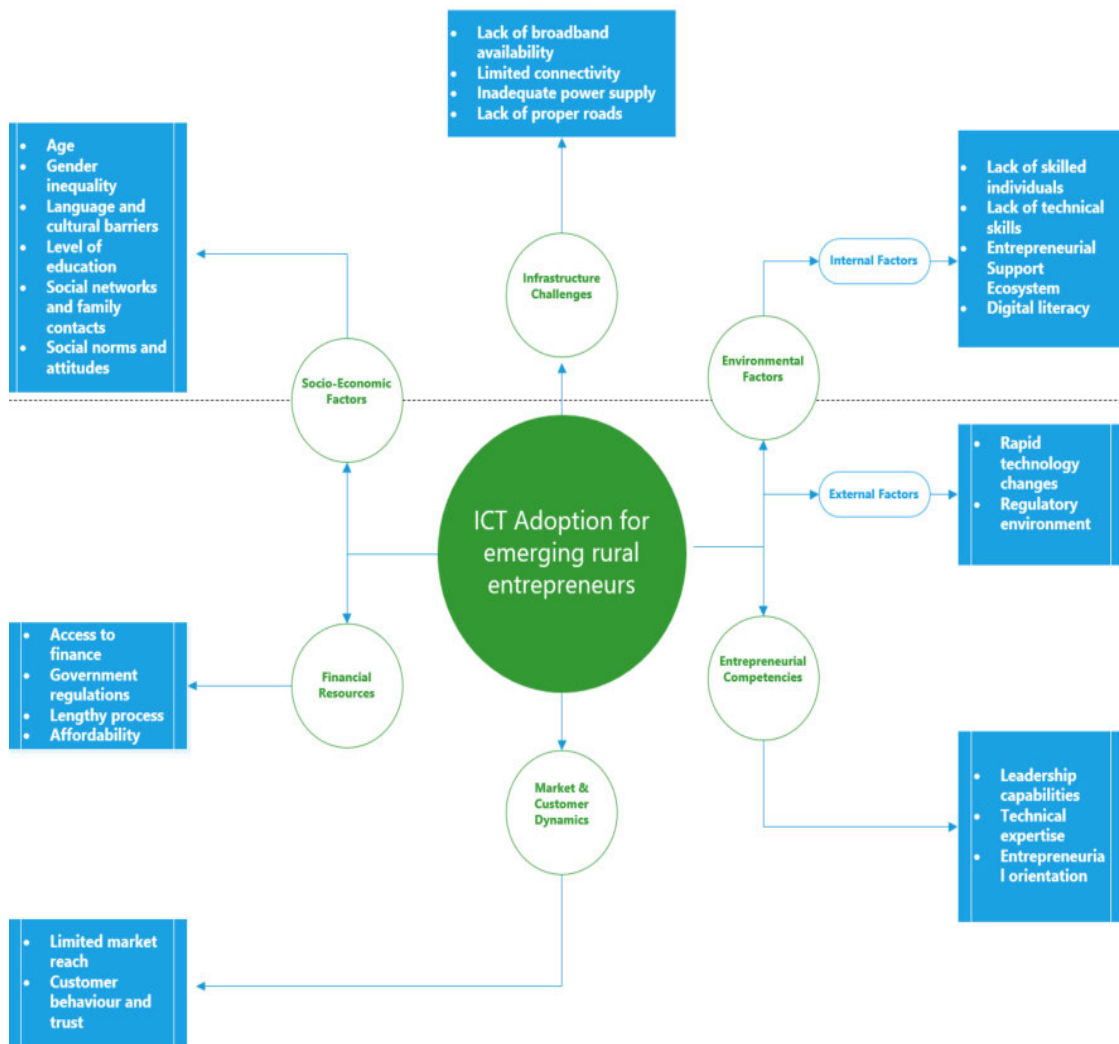
Research carried out by Ferrari *et al.* (2022:8) lend support to this conclusion. These researchers came up with the hypothesis that the availability of information and communication technology services, such as fundamental connections or technology, which might facilitate digitalization merely due to the fact that they are accessible to stakeholders in rural areas, has the potential to increase the local rural market share. This line of research lends credence to the conclusion that can be drawn from it.

### **6.3 Theoretical framework formulated through variables identified from the literature review**

As mentioned in the preceding chapters, the study objectives, hypotheses, and data collection tools were designed after a thorough literature review. The review of the relevant literature was an important resource that was utilized in the process of locating and selecting the factors that contributed to the design of the research project.

According to the literature review, the usage of modern technology is impacted by a variety of challenges, which can cause serious setbacks in terms of promoting rural entrepreneurship, innovation, reducing unemployment rates, and increasing business growth. In order to formulate and establish a framework for the research, these challenges were analysed, classified, and grouped into research themes.

The following theoretical framework demonstrates that entrepreneurial characteristics, access to finance, transportation and infrastructure, technical expertise, education and training, availability of business premises, socio-cultural challenges, were all identified as critical components that influence the use of modern technology in emerging entrepreneurs in rural KZN. These factors were used for the development of the questionnaire, and it was subjected to scientific testing. Consequently, the proposed integrated model was developed and is shown below (Figure 6.1)



**Figure 6.1 Theoretical framework based on literature review**

**Source: Developed by the researcher for this study**

This framework was established through a detailed analysis of the primary data as well as the secondary data that was gathered, which also included the insights derived through the utilization of the conceptual framework of the study. Primary (empirical) data was collected by testing a wide range of variables, which were deemed applicable by the respondents that there is an influence of modern technology on emerging entrepreneurs in rural KZN.

## 6.4 CONCLUSIONS

This section investigates pertinent theories about the adoption of information and communication technologies in rural areas and discusses those theories in relation to the empirical findings of this study.

In the 18th century, Richard Cantillon proposed that in order to be an entrepreneur, a person was required to assume the risk of purchasing something at a given price and selling it for an undetermined price. Cantillon's theory is credited with helping to establish the modern definition of entrepreneurship. According to the findings of the study, the entrepreneurial characteristics to operate a business is determined by the factors of finance, infrastructure, human resources, and ICT adoption as aspects that have a role in the capability of business owners to accomplish sustainable expansion and make substantial contributions to the overall economic change of the determined areas of rural KwaZulu-Natal.

Jean Baptiste Say (1767-1832) contributed to the expansion of the phrase's meaning by placing great emphasis on the role that entrepreneurs play in the distribution of resources, the creation of jobs, and the acceleration of economic growth through their capacity to recognize and seize opportunities (Stevenson, 1983:384). Therefore, on the basis of the empirical findings of this study, the degree of education, training, and leadership skills that entrepreneurs possess were identified as important capabilities necessary for entrepreneurs to maintain the growth and innovation of their businesses.

The theory of entrepreneurship proposed by Joseph Schumpeter, known as the Schumpeterian Theory of Entrepreneurship, revolves around the concept of innovation and its role in economic development (Becker and Knudsen, 2002:388). Schumpeter's thesis, which he presented in his book "The Theory of Economic Development," which was released in 1911, offers a fresh viewpoint on the role that entrepreneurs play in the economy. He underlined the significance of entrepreneurial activity in the process of producing economic growth and advancement through the ongoing introduction of novel ideas and approaches.

The findings of the study indicate that owners and managers of businesses support innovative ways of thinking as well as the contribution of fresh knowledge to the process of expanding the business. This is supported by the literature review as articulated by Kraus *et al* (2021:175) who remark that the accumulation of knowledge generates openings for technical improvement, which can lead to the extension of organizations or even the formation of new businesses.

The Achievement Motivation Theory (AMT) is a theory that was developed by Atkinson and Feather in 1966, who claimed that a person's inclination to become an entrepreneur is influenced by specific psychological requirements and qualities (Revelle and Michaels, 1976:394). David McClelland (1961), contributed significantly to this theory by proposing the need for achievement, is viewed as the key motivator behind entrepreneurial conduct, according to this hypothesis (Machmud and Sidharta, 2016:64).

This theory underlines the relevance of individual traits and motivations in developing entrepreneurial goals and success. While other elements such as environmental conditions and resources also play a part in entrepreneurship, this theory focuses on the importance of individual features and motivations (Kasali and Titilope, 2023:67). As indicated in the findings of the study, 63.8% of all respondents concur that an entrepreneur's characteristics affects the operation of a local/national SMME.

Everett M. Rogers conceived what is now known as the Rogers' Diffusion of Innovation Theory in the year 1962. Its purpose is to explain the process through which novel ideas, products, or inventions spread throughout a social system and are eventually accepted by its members. The theory classifies individuals into distinct categories according to the attitudes they hold and the degree to which they are inclined to embrace novel concepts. Additionally, the theory sheds light on the factors that contribute to the acceptance and proliferation of new ideas.

In addition to this, the theory offers a comprehension of the elements that influence the adoption and spread of innovations. The Diffusion of Innovation Theory developed by Rogers emphasizes how crucial it is to have a solid grasp on the characteristics of those who accept innovations as well as the communication channels that allow for their

dissemination. Peter Drucker (1985:4) provided insights into the process of innovation and stressed the powerful relationship that exists between innovative approaches to problem solving and entrepreneurial endeavours. He made the case that entrepreneurs are the primary forces behind innovation because they are the only people who can spot opportunities to create new value and take those chances.

According to Drucker (1985:4), this makes entrepreneurs the most important people behind innovation. This study highlighted environmental elements such as technical skills, access to financing, and technological advances as factors that influence the implementation of innovative ideas and the instigation of company innovation. The failure to adopt modern technology in terms of promoting and growing the business as well as having technical skills, are factors that prevented the business from being innovative.

Fred Davis (1986), proposed The Technology Acceptance Model, also known as TAM, which is a conceptual framework that is commonly utilized for the purpose of gaining an understanding of and making accurate predictions regarding user acceptance and adoption of new technology (Marangunic´ and Granic, 2015:81). The TAM is predicated on the concept that the perceived usefulness and ease of use of a technology are two factors that impact a user's propensity to utilize that technology.

According to the findings of this study and literature review, the rate of technology adoption is very poor in rural KwaZulu Natal due to lack of infrastructure as well as the technical skills that are needed to engage online.

While several researchers have concentrated their emphasis on the economic role that entrepreneurship plays, others have shifted their attention to the study of the personal attributes that are shared by successful entrepreneurs. Understanding the psychological and sociological factors that contribute to entrepreneurial behaviour has received a lot of attention and research (Stevenson, 1983:383). In the early 1990s, researchers Daniel Covin and S. Douglas Zahra were the ones who first presented the idea of entrepreneurial orientation. Since then, numerous academics working in the subject of entrepreneurship have further extended and built upon the concept of entrepreneurial orientation.

The term "rural entrepreneurial orientation" refers to the distinctive traits, attitudes, and values that encourage entrepreneurship and innovation in rural areas or within rural communities. This could be in the form of a region as a whole or within individual rural towns. It examines how entrepreneurialism can contribute to the growth and development of rural communities as well as the overall economy, with a particular emphasis on the distinct difficulties, possibilities, and context of rural settings.

According to the findings of the current study and the literature review, entrepreneurial characteristics and behaviour play an integral aspect in the adoption of modern technology. The entrepreneur is the major, and often even the only, decision-maker in a small or medium-sized enterprise; the characteristics of his personality may have a significant impact on the strategic decisions made and the innovation activities undertaken.

## **6.5 SUMMARY**

It is evident, both from the data analysis and the empirical findings of this study, that the implementation of modern technology by rural entrepreneurs is influenced by a number of factors. The variables that were investigated provided a complete and comprehensive overview of the challenges, restrictions, and shortfalls that are experienced by rural entrepreneurs. The factors of access to finance, lack of training and skilled individuals, combined with leadership characteristics were the predominant catalysts that influenced modern technology adoption by rural entrepreneurs in KZN.

The data and findings presented in this chapter shows that the empirical results of this study are consistent with the literature review that was described in chapters two and three. The focus of the subsequent chapter seven will be on the conclusions and recommendations of this study.

## **CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS**

### **7.1 INTRODUCTION**

The primary objective of this study was to establish and examine the influence of modern technology on emerging entrepreneurs in rural KZN and to propose an alternative model that might be implemented in order to facilitate the expansion of rural businesses. A thorough review of the relevant literature was conducted in order to compile the secondary data, which served as a reliable source of information. To determine whether there were any significant correlations between the study variables, the primary data was obtained through a thorough empirical investigation that was then thoroughly reviewed and analysed.

In this chapter, conclusions will be presented to summarize the most important findings and demonstrate that the research objectives were successfully accomplished. Additionally, the hypotheses will be examined in relation to the findings of the study in this section. The limitations, the recommendations based on the results of the investigation, the suggestions for additional research will conclude this chapter.

### **7.2 SUMMARY OF THE KEY FINDINGS**

The key premise of this research was to determine and investigate the influence of modern technology on emerging entrepreneurs in rural KZN. The following inferences and conclusions could be made based on the empirical findings:

Based on the acquired biographical and background information, it was determined that:

- The majority of the respondents were below the age of 40, with the largest group being in the age category 26 -30 years. It is crucial to note that this number reveals that there is a large population of younger business owners and

managers working inside the rural areas that have been identified for the purpose of this study.

- The majority of the respondents had at most a matric school qualification.
- The majority of the entrepreneurs were in sole proprietorship or a family business structure, however, a significant number were also in partnerships.
- The majority of the businesses were in operation between 1-5 years.
- Two-thirds (67.2%) of the respondents had been employment for less than 5 years.

Based on the research objectives, the following findings were determined:

- According to the findings, many of the respondents (73.45%) claimed that although they had access to a smartphone or other technical gadget, they did not have broadband in their region and did not make use of modern technology to promote their business.
- The results of the study show that 66.9% of the respondents indicated that broadband infrastructure is not available in their areas. Due to a lack of consistent internet connectivity and limited technological infrastructure, rural areas confront significant challenges when it comes to the adoption of modern technologies. According to the empirical data, 334 of the total respondents, which is 86.9%, considered that the local municipality did not provide a suitable information and communication technology (ICT) infrastructure.
- The outcomes of this study indicate that 45.1% of respondents agreed with the statement that innovation is fostered and supported within the business.

- Lack of technical skills and lack of training are key determinants in the low ICT adoption rate. This finding is supported by the results of the empirical survey, which indicate that a sizeable proportion of respondents (72.1%) are of the opinion that employees do not possess the necessary skills and are unable to navigate online platforms. This is followed by 74.5 % of respondents who claimed that employees in their company are not trained to use the most recent technologies.
- On the issue of factors that contribute to the use of modern technology by emerging entrepreneurs in rural KZN, the aspect of access to finance is a major impediment when trying to grow the business. According to the results of the study, 75.3 % of all respondents agreed that having access to financial resources is one of the variables that contributed to the utilization of contemporary technology. The findings of the study indicate that 45.3% of all respondents agreed that external environmental factors do have an influence on the business and the growth plan to remain operational and competitive.
- The outcomes of the empirical research indicated that 63.8% of respondents believed the leadership qualities of an entrepreneur were essential to the proper operation of the business. Aftab *et al.* (2021:4), citing Durkin and Gunn (2016:65), state that entrepreneurial competences comprise traits such as the talents, knowledge, and skills of the entrepreneurs in order to achieve outstanding firm performance.
- The findings from the analysis of the data showed that 44.3% of respondents held the opinion that the adoption of modern technologies has not improved the level of entrepreneurial activity in the rural areas of KZN.
- The study revealed that 195 out of all respondents, which constitute 50.7% of the total, are of the opinion that modern technology has the potential to boost the local rural market.

## **7.3 Conclusions**

The conclusions are constructed for each research objective and will be discussed in the following section. The results and analyses are presented in a manner that aligns with the objectives of the research.

### **7.3.1 Conclusions on research objectives**

The empirical results and tested hypotheses provide the foundation for these conclusions, which are supported by a scientific statistical analysis as discussed in the next section. Variables that are present in the questionnaire are covered in the explanation of these objectives' conclusions. The elements under investigation, which will be elaborated upon in the subsequent discussion, were derived from the questionnaire (refer to Appendix C). The questionnaire was meticulously developed in alignment with a comprehensive study of existing literature and the research objectives.

The questionnaire was used as a primary data collection instrument and was then given to the individuals who were the focus of this investigation. Based on the findings of the data analysis, it is evident that several factors have been identified and determined to be statistically significant (refer to Table 5-1). Based on the findings, the identified variables suggest the necessity of a comprehensive growth model that encompasses all crucial factors influencing the adoption of modern technology by emerging entrepreneurs in rural KZN that can be suggested, adapted, and encouraged to be utilized. In the subsequent section, the developed integrated model will be presented and discussed.

#### **Sub-objective 1: To examine the use of modern technology among emerging entrepreneurs in the rural KwaZulu-Natal Province**

This objective's assumption was to establish the level of understanding and knowledge regarding the application of modern technology among rural business owners and

managers. The research indicated that the majority of the respondents had access to or owned a mobile device, however, the primary use of the device was for personal communication and not used as a business tool to promote the business. Another key finding is that the lack of broadband availability also contributed to the respondents not using modern technology to access local/national markets.

**Sub-objective 2: To assess the implications of modern technology on emerging entrepreneurs in the rural KwaZulu Natal Province**

According to the results of the study, it can be concluded that the majority of the respondents believed that innovation is integral to growing the business, however, this is not achieved as they do not use modern technological facilities in their business. Another pertinent factor is that the majority of the respondents believed that in order to navigate their way online required training and technical skills, and business owners and managers did not have access to training that was suitable for their needs. The lack of awareness among entrepreneurs regarding the advantages of utilizing modern technology for business promotion is a significant concern, as it hinders their ability to capitalize on these benefits.

**Sub-objective 3: To evaluate the factors contributing to the use of modern technology among emerging entrepreneurs in the rural KwaZulu- Natal Province**

According to the findings of the study, it can be concluded that there are various factors that impede the use of modern technology for rural entrepreneurs. High internet costs, lack of access to finance and reliable internet connectivity were identified as challenges contributing to the use of modern technology. This finding indicates that the fundamental reason why many attempts to start businesses in rural areas are unsuccessful is because they do not have access to adequate financial resources. Having access to financing is a major barrier to the expansion of rural entrepreneurship, and this is because entrepreneurs are dependent on financial

resources in order to drive growth and exploit technological breakthroughs. Another key component is the lack of adequate ICT infrastructure by the local municipalities, which invariably means that rural entrepreneurs are unable to depend on modern technology to promote their business.

**Sub-objective 4: To ascertain the characteristics such as attitudes and opinions of the emerging entrepreneur towards using modern technology in the rural KwaZulu-Natal Province**

The key premise of this objective was to ascertain the characteristics, such as attitudes and opinions, of the emerging entrepreneurs in the selected rural areas of KZN regarding the utilization of modern technology. It can be surmised that the majority of the respondents strongly believed that the leadership qualities of an entrepreneur have an impact on the operations of a local or national SMME. Further to this, respondents noted that the external business environment needs to be scanned constantly, and that the entrepreneur needs to adjust the business plan in order to guarantee that the growth goals of the company are met. Many concur that in order for an entrepreneur to be successful, they need to have the abilities and capacities necessary to effectively generate new products and react to changing market conditions.

**Sub-objective 5: To evaluate the awareness and knowledge about the advantages of modern technology being used as a business tool among emerging rural entrepreneurs in the rural KwaZulu-Natal Province**

The empirical findings indicated that a significant number of respondents disagreed with the notion that the proliferation of mobile phones and other digital technology has led to an increase in rural entrepreneurship. This indicates that rural entrepreneurs are aware of the potential and advantages of using modern technology, however, the rate at which new technologies are adopted and the expansion of entrepreneurial activity in

rural areas have both been slowed down by a variety of reasons, including a lack of technical expertise, access to financial resources, and infrastructure.

#### **7.4 CONCLUSION OF THE RESEARCH HYPOTHESES**

This section presents a comprehensive review of the findings that were established in the first chapter and laid out as the alternative hypothesis (Ha) and the null hypothesis (Ho). The evaluation of the link between the variables was accomplished by utilizing a bivariate analysis, which was presented in the form of correlation tables, in addition to adequate inferential statistics. The following are the primary hypotheses that were to be investigated throughout this study:

*Ha1: There is a relationship between using modern technology and broadband availability to grow the business by emerging entrepreneurs in rural KwaZulu-Natal*

The findings of the bivariate correlation demonstrate that there is a statistically positive link between the variables that were examined, with a significance level of 0.233\*\* (sig. 0.000) level. This suggests that the null hypothesis should not be accepted. It can be concluded that broadband availability has a significant impact in terms of how respondents make use of modern technology to grow the business.

**Table 7.1: Ha1**

*Ha1: There is a relationship between using modern technology and broadband availability to grow the business by emerging entrepreneurs in rural KwaZulu-Natal*

		Correlations
		Broadband is available in my area, and I have access to the internet
I use modern technology to promote my business	Pearson Correlation	0,233**
	Sig. (2-tailed)	0.000
	N	384

The findings of the bivariate correlation demonstrate that there is a statistically positive link between the variables that were examined, with a significance level of 0.460\*\* (sig. 0.000) level. This suggests that the null hypothesis should not be accepted. It can be concluded that there is a relationship between innovation and acquiring technical skills via training that has an influence in terms of how entrepreneurs use modern technology. The greater the training on the use of modern technology, the greater the promotion to online markets would be.

**Table 7.2: Ha2**

*Ha2: There is a relationship between innovation and technical expertise of emerging entrepreneurs in rural KwaZulu-Natal*

		Correlations
		In our business our employees are skilled and can navigate the use of IoT in line with the business
In our business we train our employees on how to use modern technology such as online business platforms	Pearson Correlation	0,460**
	Sig. (2-tailed)	0.000
	N	384

The findings of the bivariate correlation demonstrate that there is a statistically positive link between the variables that were examined, with a significance level of 0.158\*\* (sig. 0.002) level. This suggests that the null hypothesis should not be accepted. It can be concluded that external factors have an impact on the use of modern technology and ICT adoption in rural KZN.

**Table 7.3: Ha3**

*Ha3: There is a relationship between external factors and the use of modern technology among emerging entrepreneurs in rural KwaZulu Natal*

Correlations		
In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers		
I believe that local municipalities provide adequate support for rural businesses when it comes to ICT infrastructure	Pearson Correlation	0,158**
	Sig. (2-tailed)	0.002
	N	384

The findings of the bivariate correlation demonstrate that there is a statistically positive link between the variables that were examined, with a significance level of 0.153\*\* (sig. 0.003) level. This suggests that the null hypothesis should not be accepted. It can be concluded that the leadership characteristics of the entrepreneur is integral when promoting the business online and accessing local and national markets.

**Table 7.4: Ha4**

*Ha4: There is a relationship between entrepreneurial characteristics and the use of modern technology to grow the business among emerging entrepreneurs in rural KwaZulu- Natal*

Correlations		Technology and online marketing can promote and grow the local/national markets
The lack of entrepreneurial and management skills affects the operation of a local/national SMME	Pearson Correlation	0,153**
	Sig. (2-tailed)	0.003
	N	384

The findings of the bivariate correlation demonstrate that there is a statistically positive link between the variables that were examined, with a significance level of 0.212\*\* (sig. 0.001) level. This suggests that the null hypothesis should not be accepted. It can be concluded that there is a significant relationship between using modern technology to grow a business and the impact it has on digitalizing rural entrepreneurial efforts.

**Table 7.5: Ha5**

*Ha5: There is a relationship between digitalization and the impact it has on promoting rural entrepreneurship in rural KwaZulu Natal*

Correlations		I use modern technology to promote my business
Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones	Pearson Correlation	0,170**
	Sig. (2-tailed)	0.001
	N	384

The research identified all the elements that were included in the research questionnaire in order to identify whether or not they were relevant to the influence of modern technology on new business owners in rural areas of the KwaZulu-Natal Province. These factors were determined in order to achieve the objectives of the study and also to respond to the questions raised by the research. All variables were judged to be significant and pertinent to the study's aims after being assessed for reliability and significance for each objective. The hypotheses were found to be acceptable. All targeted objectives have been met, and it is concluded in this section that they are all still relevant. Additionally, this component attests to the fact that each research question has been adequately answered.

## **7.5 IMPLICATIONS**

The outcomes of this study include the implications for the adoption of modern technology and the growth opportunities for rural entrepreneurship.

### **7.5.1 Implications of modern technology adoption theories**

The primary objective of this research is to provide a contribution to the existing body of knowledge by presenting an integrated model that is composed of the elements that influence the adoption of modern technology for emerging entrepreneurs in the identified rural areas of KwaZulu-Natal. According to the empirical findings of this study and the literature that was reviewed, it can be determined that many emerging entrepreneurs, both in the KwaZulu-Natal Province and other countries, face a wide variety of obstacles that make it difficult for them to adopt information and communication technologies. As a result, many rural business owners struggle to achieve sustainable growth.

This study adds new information to the existing body of knowledge and focuses on growth theories for the adoption of information and communication technologies in rural business. Even though there is a growing consensus that digital transformation is necessary, many SMMEs are still having trouble identifying specific benefits that may

be gained from ICT adoption and transformation. On the one hand, this is because they do not possess the managerial characteristics and relevant technical expertise necessary to understand how to effectively drive transformation through the use of modern technology.

Conversely, implementation and adoption of digital technologies, could be very costly. The integrated innovative leadership framework that has been developed demonstrates that innovative leadership, technical skills, education and training, access to finance, information, and communications technology (ICT) infrastructure, and the adoption of ICT are primary factors in the innovation of businesses and the sustainable growth of rural enterprises. An increased awareness of the environmental factors that can act as roadblocks to company innovation is of critical importance to the development and continued viability of rural entrepreneurship.

As technology advances, there is a need for rural entrepreneurs to begin giving serious consideration to the possibility of embracing modern technology and business growth theories in order to achieve sustainability and remain competitive.

### **7.5.2 Implications of modern technology adoption practice**

Entrepreneurs in rural areas can make significant contributions to the overall economic development of the nation. These contributions can take the form of contributions to the Gross Domestic Product (GDP), the creation of jobs, as well as economic development and transformation. Regarding the practical application of these findings, it is abundantly clear that rural enterprises (SMMEs) are unable to broaden their product lines or modify their existing ones due to the numerous obstacles they must overcome. The most significant of these obstacles are a lack of financial assistance, a limited size of the local market, and a shortage of technically skilled individuals.

In addition, because of a lack of knowledge and abilities, they are unable to use modern strategies for attaining growth and successful marketing promotional approaches. This prevents them from competing with other businesses in their industry. The study's practical implications are expected to yield benefits for owners and managers of rural

small, micro, and medium enterprises (SMMEs). Specifically, it will offer a novel growth theory and model that focuses on rural entrepreneurship growth and the integration of modern technology, particularly in rural areas of the KwaZulu-Natal Province.

The results of this study suggest that SMMEs in South Africa's rural areas, with a particular focus on KwaZulu-Natal, are unable to increase their percentage of the local market due to the challenging economic conditions there. The majority of the local customers are unemployed and have very little disposable income.

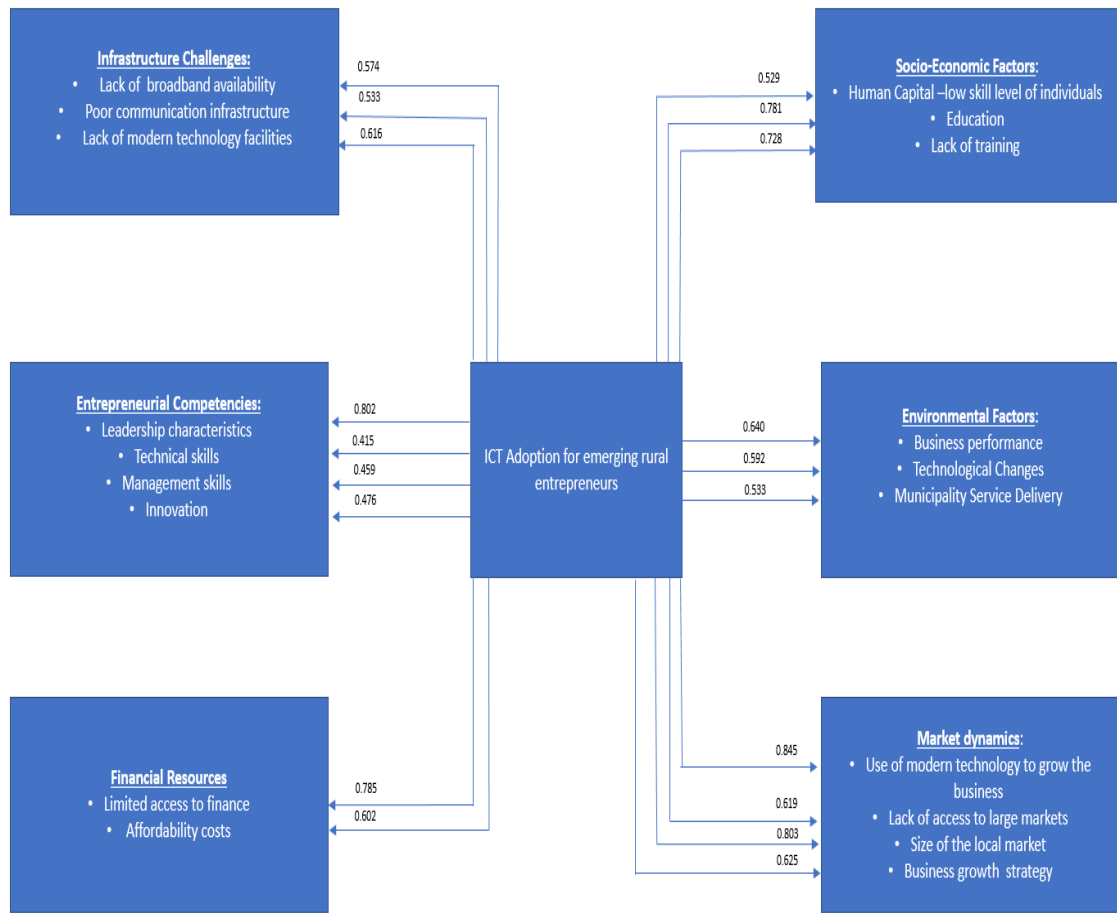
Moreover, poor communications infrastructure means that access to the internet is not constant due to poor network coverage or broadband signal and load-shedding. Inadequate transport networks mean that many areas are inaccessible by cars, as the roads are not paved or tarred. The absence of adequate infrastructure not only yields adverse consequences but also serves as a deterrent for aspiring young entrepreneurs to initiate their own enterprises. Having knowledge and training on information and communications technology was also noted to be a key component for entrepreneurs.

## **7.6 RECOMMENDATIONS BASED ON THE RESULTS OF THE STUDY**

The empirical findings of the investigation, served as the foundation for the suggestions made in this study because they provided direct evidence for the hypotheses being tested.

### **7.6.1 Proposed Integrated Conceptual Framework**

A proposed integrated conceptual framework is submitted below which highlights the factors that were identified from the empirical study and primary data analysis. This framework provides insights to the interrelationship between the factors that influence the adoption of modern technology adoption in the rural KZN.



**Figure 7.1: Proposed Integrated Conceptual Framework**

### Infrastructure challenges

This empirical study highlighted a number of significant external elements that have been found to have an effect on rural entrepreneurship. Poor infrastructure, including inadequate roads and lack of broadband facilities has been cited as a major hindrance to the expansion and development of SMMEs. Even while residents of rural areas may be able to use the internet, the majority of them do not have access to high-speed broadband Internet, which is critical for the expansion of online business.

As a direct result of this, there are significantly fewer rural business owners than there are urban business owners who claim to make use of the Internet for professional purposes. Technology should be viewed as a crucial tool for business owners and

managers, as it helps rural enterprises to access mass markets, link with global supply chains, follow customers in a cost-effective manner, and improve their internal operations. This means that technology cannot be disregarded, and owners and managers of rural businesses should treat it as such.

### **Socio-economic factors**

The operation of enterprises and entrepreneurial behaviour are fundamentally influenced by socio-economic conditions. The factors of production, namely land, labour, capital, and entrepreneurship, are the essential resources involved in the production process. Economic growth, on the other hand, is a consequence of the combined effects of resource expansion and the pace of technological advancement. The entrepreneurial component, which contributes techniques for achieving certain goals, including those inventions responsible for technical advancement, is a key factor in the economic success of all countries.

According to the conclusions of the empirical research, age and level of education are two major criteria that have a significant impact on rural entrepreneurship. The research findings have highlighted training and education levels as key factors that affect rural entrepreneurship. In order for rural entrepreneurs to have the knowledge and skills necessary to detect the opportunities presented by social problems, the study encourages the government to be aware of these characteristics and to support more of them in their pursuit of tertiary education.

### **Entrepreneurial competencies**

It has been hypothesized that rural business owners face challenges due to a lack of entrepreneurial culture or negative attitudes toward entrepreneurship. The difficulty is that the vast majority of entrepreneurial endeavours in rural areas are undertaken with the intention of boosting the income of individual households.

The integrated conceptual framework that has been proposed shows that a lack of technical skills, insufficient knowledge of information technology, and a lack of

managerial abilities have been seen as part of the key technical components that impact the ability of the entrepreneur.

As a consequence of this, business acumen tends to be lacking, which highlights the requirement for training in skills related to entrepreneurship and company management, in addition to a more general paradigm change in one's way of thinking. As a result, the research suggests that it is highly important for those in leadership positions to be aware of these characteristics and the ways in which they impact the business.

### **Environmental factors**

The ability of a business to successfully manage and analyse both the internal and external environmental factors that affect its operations is essential to the success of the business in improving its performance over time. A lack of adequate information, strategy, and understanding about the application of modern technology and how it might contribute to the rural entrepreneurial growth places a burden on the rural entrepreneur.

Rural entrepreneurs face unique environmental issues which include a lack of effective procedures to drive the establishment and development of new businesses, an inability to access external sources of funding, government regulations, a lack of business support, and a poor grasp of the notion of entrepreneurship. Business performance may be quite important for a company, as it can serve as an indicator of how well the company is doing at the moment. The capacity of a rural business to adjust and develop strategies that correspond to the fast changing internal and external environment is a crucial factor in determining whether the organization will be successful. This capability should be taken into consideration for the formation and expansion of entrepreneurial endeavours.

## **Financial Resources**

A lack of access to financial resources, as well as the inability to afford data and Wi-Fi access in order to utilize the internet, were some of the important financial factors that hindered the activities of entrepreneurs in terms of disseminating and adopting the use of modern technologies to achieve growth. Financial exclusion prevents entrepreneurial behaviour, as most rural entrepreneurs do not have the capital that is needed to grow the business or to invest in modern technology.

It is advised that the government and banking institutions develop programmes and mechanisms that make it easier for rural entrepreneurs to gain access to financial resources. In order for financial institutions to improve the efficiency of rural entrepreneurs and increase their access to credit and loans, the institutions should relax some of the constraints that are already in place.

## **Market dynamics**

Several factors contribute to the dynamics of markets, including the significant operational costs associated with managing small deposits or loans, the substantial fees incurred in delivering financial services in rural areas and small towns, the absence of comprehensive credit information or appropriate collateral, and the limited availability of accessible access points. The local demand for products is low, and it can be challenging to obtain the resources that are needed. To phrase it another way, rural entrepreneurs often found enterprises that are not as successful and have profits that are only somewhat lucrative.

It would appear that the geographical isolation of tiny villages greatly restricts residents' ability to acquire the resources necessary to launch successful high-growth firms. In addition to this, it seems that these hurdles will be more difficult to overcome in the rural service industry, which is responsible for the majority of the entrepreneurial activity in rural KZN. As a result of the size of the market and the greater distances between customers in rural areas, business owners in the service sector are more likely to run less profitable companies that operate their business in rural areas.

Access to venture funding is more difficult for people who start businesses in remote areas. Additionally, it may be more challenging to access technological resources. Lastly, it is often observed that rural business proprietors lack the necessary managerial or technical proficiency needed to establish prosperous high-growth enterprises. The emergence of new business owners in rural areas is significantly influenced by the economic underpinnings of these regions. The variation in entrepreneurial activity in rural locations is contingent upon the specific sector. It should not come as a surprise, considering the diversity of businesses run by entrepreneurs, that rural areas with economies centred on services have the highest rate of new business formation.

Overall, it is recommended that in order for rural entrepreneurs to improve their activities and grow while also contributing to sustainable development, the first step is to conduct a comprehensive analysis of the internal and external factors that are affecting their business operations, and then to determine the most appropriate remedial approaches in the process of improving their operations. This will make it possible for rural business owners to enhance their operations and expand, while contributing to the development of more sustainable practices. The conceptual framework shown in the model above will be of assistance in the process of formulating these distinct methods.

## **7.7 RECOMMENDATIONS**

The recommendations that stem from this study are founded on the outcomes of the empirical research done on the influence of modern technology among emerging entrepreneurs in rural KZN.

### **Rural entrepreneurship policy re-evaluation**

According to the conclusions of the study, exorbitant interest rates, poor policies and regulations, improper government support systems, and corruption have all had a

detrimental impact on rural entrepreneurship. It is unknown what the role of rural entrepreneurship is in terms of welfare or what kind of impact it can have on people's living standards. The decision-makers in charge of formulating policies need to have access to this information in order to be able to create effective policies that encourage entrepreneurial activities in rural areas.

The high rates of poverty and unemployment in South Africa have made it quite evident that social security benefits on their own are not enough to keep poor rural communities afloat. It is recommended that the South African government undertake a thorough reassessment of the legislation and policies pertaining to small enterprises, in the light of the substantial proliferation of rules and the challenges associated with complying with governmental regulatory bodies. Considering the characteristics of rural areas, the study suggests that entrepreneurial activity in rural areas be encouraged in order to increase employment opportunities and incomes for rural residents. Policies that encourage entrepreneurial activity in rural areas and pay attention to the social context as well as the perspectives of business owners could offer lower-income people greater possibilities for financial gain.

Initiators of rural development programmes have the obligation of encouraging residents of rural areas to come up with their own selected entrepreneurial activities that are designed to fulfil the actual demands that exist in their respective local communities. The government ought to initiate start-up funding programmes as well as microfinance schemes as a means of providing funding for individual and group activities that result in the generation of income and poverty alleviation. According to the findings of this study, there is a need for revisions to be made to the educational policies of the government in order to incorporate entrepreneurship education and training into the primary and secondary school curriculum.

### **Education, training, and skills development**

Small, micro and medium-sized enterprises (SMMEs) in rural areas confront a variety of obstacles, including limited access to broadband internet and electricity in certain regions, inadequate infrastructure for telecommunications, a lack of knowledge and

expertise in marketing, and incompetence in company administration. In addition, boosting initiatives, investing in entrepreneurial education and skill development will enable entrepreneurs to seek out and seize opportunities, take calculated risks, and make decisions in the face of uncertainty, which will increase their chance of success.

In order to build the human resource base, the South African national development strategy plan ought to provide strategic ICT coordination in its policy creation and programme delivery in the country's rural areas. It is imperative that technological and business organizations and training centres be formed in rural areas, with a particular focus on KwaZulu-Natal.

It is recommended that the government, service providers, and other stakeholders start programmes that will improve the digital literacy and skill sets of the rural community. The training programmes should also focus on promoting digital service awareness and cybersecurity knowledge, the latter of which will inform rural business owners about the advantages of using the internet for work-related purposes and provide them with crucial cybersecurity skills to keep them safe online.

### **Information and communications technology adoption**

The proposition suggests that more efforts are required to enhance the promotion of online entrepreneurship within the rural KZN region. This is necessary to enable aspiring entrepreneurs to enhance their utilization of modern technology as effective promotional instruments. This would enable them to make better use of the resources available to them through the network. In addition to the challenges posed by lack of broadband facilities and load shedding, small and medium-sized enterprises (SMMEs) located in the KZN rural areas must contend with other obstacles, including a deficient infrastructure for telecommunications, an absence of management and marketing expertise, insufficient understanding about entrepreneurship, and incompetent management.

There has been a suggestion that the government enhance the human resource foundation by implementing strategic coordination of information and communication

technology (ICT) in the execution of its policy development initiatives in rural regions. Due to this, emerging entrepreneurs in rural KZN will have an easier time comprehending the advantages of utilizing modern technologies. One proposed recommendation is the establishment of a governmental steering organization tasked with advocating for and organizing a skills agenda pertaining to rural training and capacity development, specifically emphasizing the effective utilization of information and communication technology (ICT).

The government must encourage the use of modern technology and the internet to benefit entrepreneurship activities in rural regions in the light of the fact that rural people use ICT enabled services for entrepreneurship activities at a lower rate, particularly, online marketing and online buying. The stakeholders must design digital services that are appropriate for their intended use and create needs-specific, user-friendly applications for rural entrepreneurs. Another recommendation is that the government should consider decreasing import duties on ICT equipment in order to reduce the cost of devices for end consumers.

### **Business financial management support**

In the rural and underprivileged communities of KZN, the significance that entrepreneurship plays in the expansion of employment possibilities is not commonly acknowledged, even though it is crucial for the growth of employment prospects. The research additionally indicates that it is advisable to promote the engagement of rural entrepreneurs in business training and development initiatives. The proprietors and managers of SMMEs need to organize trade associations or business forums in their local regions; due to this, they will be in a better position to assist one another with the necessary skills and expertise for that particular business.

They also have the ability to coordinate and host training workshops between and amongst themselves. Entrepreneurs continue to have a difficult time gaining access to

financial resources as a direct result of the constantly high interest rates. As a result, the government needs to encourage rural entrepreneurship by supplying an acceptable legal framework that shields rural business owners from having to submit collateral to financial institutions in order to receive loans and from being subjected to high interest rates.

## **7.8 LIMITATIONS OF THE STUDY**

Limitations include a rural community's sample focusing on entrepreneurs. The survey was only conducted in four rural areas in KZN, resulting in the findings have limited generalisation; it can, however, be used to build some hypotheses for other rural areas. This study employed a structured questionnaire that constrained participants in expressing their sentiments regarding the many limitations that impacted the utilization of modern technologies within their respective regions. The findings, on the other hand, are constrained by the exploratory and quantitative nature of the study, as well as by the small sample size, which did not include any other rural areas from other South African provinces.

Hence, it is imperative to exercise caution when generalizing. Consequently, it is recommended that additional studies be undertaken using more extensive samples that encompass other provinces in South Africa. Additionally, a larger sample size is advised for more accurate and meaningful results. Moreover, to evaluate and validate the suggested conceptual ICT adoption model for rural entrepreneurs, potential interventions must be put into practice.

## **7.9 RECOMMENDATIONS FOR FUTURE RESEARCH**

This study adds value to the body of knowledge on information systems in three ways: it gives a concise account of how digital platforms have affected rural communities; it outlines a research agenda for future studies on digital entrepreneurship in developing nations; and it offers a thorough understanding of the literature on ICT adoption

in terms of the connections between human development, technology, and people. Adoption of ICT results in digital innovation, which then results in an increase in capabilities.

Digital innovation has the power to break down value chains, lower entry barriers, and open opportunities for emerging entrepreneurs in rural areas. Access to markets, training, and opportunities are made possible by ICT adoption, which can improve the standard of living. In the rural and underprivileged communities of KZN, the significance that entrepreneurship plays in the expansion of employment possibilities is not commonly acknowledged, despite the fact that it is crucial for the growth of employment prospects.

Additional research is required to analyse the contribution that non-governmental organizations (NGOs) play in ensuring the continued existence of rural small and medium-sized businesses (SMMEs), especially in KZN. This will make it possible for rural communities to gain the essential skills and knowledge, notably in promoting the survival and expansion of small and medium-sized enterprises (SMMEs) as part of the measures for reducing poverty, supplied mostly by NGOs. Rural communities will benefit tremendously from this in a variety of ways h as being able to offer financial assistance to young business owners who are just getting their companies off the ground.

Additional research is required to evaluate the application of modern technology as a tactical instrument for the development of rural small and medium-sized enterprises (SMMEs), with a special focus on KZN. By engaging a wide pool of consumers, the implementation of this idea will facilitate the growth of the rural SMME market. The application of technology will be helpful in terms of solving the obstacles posed by inadequate infrastructure, such as roads and the delivery of electricity.

Researchers in the future could attempt to reproduce and possibly validate the findings of this study by applying them in the context of various sorts of economies. An intriguing question that may be addressed is the impact that business interruptions induced by events such as the outbreak of the pandemic or upheavals in geopolitical

systems have on the ability of such entrepreneurial efforts to maintain their business continuity.

Additional research ought to take a closer look at the various ways emerging entrepreneurs might adjust to the rapid advancement of technology. This will assist emerging entrepreneurs to build strategies and invest in technical advancements that are acceptable and appropriate so that they can compete favourably in the dynamic commercial environment. Despite these limitations, the findings of the study will, in the future, encourage researchers to develop a more comprehensive model that is applicable not just to established economies but also to developing nations.

## **7.10 SUMMARY**

This study has highlighted the influence of modern technology on emerging entrepreneurs in rural KZN and the key factors impacting the use of modern technology among rural businesses. The recommendations and conclusions that were presented in this chapter indicate some of the possible activities that might be implemented to strengthen the adoption of modern technology by emerging entrepreneurs in order to achieve sustainable development in the townships of KwaZulu- Natal.

This study brings contributions to the practical realm by presenting elements that ought to be contemplated while trying to encourage the adoption of ICT by rural small, micro and medium-sized enterprises (SMMEs). This study could help, small, micro and medium-sized business owners and managers to understand the elements that should be considered before using information and communication technology (ICT). Moreover, because the owners and managers of small, micro, and medium, enterprises are the major decision-makers, it is vital to understand the variables that need to be considered when using information and communication technologies (ICTs).

Finally, the researcher hopes that this study will make it feasible for the government and other stakeholders to better their approach and partnerships with rural

entrepreneurs to develop social values that will assist in addressing the challenges that were outlined as part of this research.

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## APPENDICES



### APPENDIX A: LETTER OF INFORMATION

Date: \_\_\_\_\_

Dear Participant

I am a PhD student at DUT doing research for my Doctorate Degree in Business Administration. I would like to invite you to participate in the research that I am undertaking which focuses on the influence of modern technology on emerging entrepreneurs in rural KwaZulu-Natal (KZN) Province.

The aim of the study is to investigate the influence of using modern technology among emerging entrepreneurs in rural KwaZulu-Natal Province. To achieve the aim of this study, the following primary objectives will be pursued:

- To examine the use of modern technology among emerging entrepreneurs in the rural KwaZulu Natal Province
- To assess the implications of modern technology on emerging entrepreneurs in the rural KwaZulu Natal Province
- To evaluate the factors contributing to the use of modern technology among emerging entrepreneurs in the rural KwaZulu Natal Province
- To ascertain the characteristics such as attitudes and opinions of the emerging entrepreneur towards using modern technology in the rural KwaZulu Natal Province
- To evaluate the awareness and knowledge about the advantages of modern technology being used as a business tool among emerging rural entrepreneurs in the rural KwaZulu Natal Province

The nature of the research does not place any risk on you and you can choose to withdraw at any time. The time taken to complete this questionnaire should be approximately 60 minutes in duration, and you can choose to withdraw at any time.

There are no benefits from this research aside from adding to the body of literature and knowledge on this topic. No remuneration will be given to you for participating in this study. Your participation in this study has absolutely no cost implications to you. Your name will not be used in the final document. Whatever that is written on the questionnaire during this activity will be kept confidential by the researcher. Completed questionnaires will be stored in a safe storage for five years and thereafter be shredded whilst electronic records will be kept for five years and thereafter be deleted

Please contact the researcher (0836578697), my supervisor (084 782 8059.) or via email ([ravinderr@dut.ac.za](mailto:ravinderr@dut.ac.za)).

Alternatively, you may contact the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Director: Research and Postgraduate Support Dr L Linganiso on 031 373 2577 or [researchdirector@dut.ac.za](mailto:researchdirector@dut.ac.za).



## **APPENDIX B: CONSENT**

**Full Title of the Study:** The influence of modern technology on emerging entrepreneurs in rural KwaZulu-Natal (KZN) Province

**Names of Researcher/s:** Fiona Langry

### **Statement of Agreement to Participate in the Research Study:**

- I hereby confirm that I have been informed by the researcher, Fiona Langry (name of researcher), about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: IREC 014/22,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

_____	_____	_____	_____
<b>Signature/Right Thumbprint</b>	<b>Date</b>	<b>Time</b>	<b>Place</b>

I, Fiona Langry herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Fiona Langry	20 March 2023	
_____	_____	_____
<b>Full Name of Researcher</b>	<b>Date</b>	<b>Signature</b>

_____	_____	_____
<b>Full Name of Witness (If applicable)</b>	<b>Date</b>	<b>Signature</b>

_____	_____	_____
<b>Full Name of Legal Guardian (If applicable)</b>	<b>Date</b>	<b>Signature</b>

## APPENDIX C: QUESTIONNAIRE

### SECTION A: BIOGRAPHICAL DATA

### ANNEXURE A

#### INSTRUCTIONS TO RESPONDENTS:

1. Please select **ONLY ONE** response with a tick ✓ for each question.
2. Answer **ALL** the pre-coded questions in this section.
3. Please **DO NOT** leave any question blank.

1. Please indicate your age group:

1.1	20-25 years	1
1.2	26-30 years	2
1.3	31-35 years	3
1.4	36-40 years	4
1.5	41-50 years	5
1.6	> 51 years	6

2. Please indicate your gender:

2.1	Male	1
2.2	Female	2
2.3	Other	3

3. Please indicate your highest qualification:

3.1	Primary Schooling	1
3.2	Secondary Schooling	2
3.3	Matric	3
3.3	Diploma/Bachelor's Degree	4
3.4	Honours Degree	5
3.5	Masters	6

4. Please indicate which ONE of the following SECTORS is applicable to you:

4.1	Hair Salon / Barbershop/Beauty Parlour	1
4.2	Food and Beverage	2
4.3	Spaza Shop Owner	3
4.4	Car Wash	4
4.5	Auto Mechanic	5
4.6	Construction	6
4.7	Farm Produce	7
4.8	Trade and Accommodation	8
4.9	Transport and Communication	9
4.10	Other	10

5. Please indicate the ownership structure of the business:

5.1	Sole proprietor/ Family Business	1
5.2	Partnership Business	2
5.3	Close Corporation	3
5.4	Other	4

6. For how many years have you owned/operated this business.

6.1	1-5 years	1
6.2	6-10 years	2
6.3	11-15 years	3
6.4	16-20 years	4
6.5	21-25 years	5
6.6	>26 years	6

7. How is the business operated in terms of infrastructure?

7.1	Residential premise such as garage/outbuilding etc	1
7.2	Street corner or pavement or tuck shop	2
7.3	Stall/table/ container in a designated trading area	3
7.4	Door to door selling	4
7.5	Car/truck or any other form of transport method	5
7.6	Online-Facebook marketplace/WhatsApp/Telesales/Instagram	6

8. How is the business operated in terms of business rights?

8.1	I own the premises from which the business operates	1
8.2	I rent or have rights to use the premises from which the business operates	2
8.3	I own the vehicles/equipment that I use in the business	3
8.4	The business is a part time/temporary side hustle	4
8.5	The business is seasonal	5
8.6	I have the rights to use the business name and operate under this name	6

9. In which of the following fields have you received training?

9.1	Marketing management	1
9.2	Human resource management	2
9.3	Business management	3
9.4	Building and construction	4
9.5	Social and community-based education	5
9.6	Beauty and Skin care	6
9.7	Artisan and Trade	7

**SECTION B: Use of Modern Technology in rural KwaZulu-Natal Province**

**INSTRUCTIONS TO RESPONDENTS:**

1. Please select **ONLY ONE** response with a tick ✓ for each Likert Scale statement below.
2. Answer **ALL** the pre-coded statements in this section.
3. Please **DO NOT** leave any statement blank.

**KEY: SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree**

How is modern technology used by the emerging entrepreneur in rural KwaZulu Natal Province?

		<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
1	I have access to the internet via a smartphone or other technological device	1	2	3	4	5
2	Broadband is available in my area, and I have access to the internet	1	2	3	4	5
3	I use modern technology to promote my business	1	2	3	4	5
4	Modern technology is used as source of information to access local/national markets	1	2	3	4	5
5	Technology and online marketing can promote and grow the local/national markets	1	2	3	4	5

What are the implications of using modern technology among the emerging entrepreneurs in rural KwaZulu Natal Province?

		SD	D	N	A	SA
6	In our business employees are encouraged and motivated to submit innovative ideas	1	2	3	4	5
7	In our business our employees are skilled and can navigate the use of IoT in line with the business	1	2	3	4	5
8	In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers	1	2	3	4	5
9	In our business we train our employees on how to use modern technology such as online business platforms	1	2	3	4	5
10	Technology has an impact in operating a local/national business	1	2	3	4	5

What are the factors contributing to the use of modern technology by the emerging entrepreneurs in rural KwaZulu Natal Province?

		SD	D	N	A	SA
11	The costs of internet are very high in terms of purchasing data bundles and Wi-Fi access	1	2	3	4	5
12	I believe that you need to have special skills to be able to use technology online	1	2	3	4	5
13	Access to finance affects the ability to grow our business	1	2	3	4	5
14	I believe that local municipalities provide adequate support for rural businesses when it comes to ICT infrastructure	1	2	3	4	5
15	The local market is very small to sell our business' products	1	2	3	4	5

What are the characteristics of the emerging entrepreneur when using modern technology in rural KwaZulu Natal Province?

		<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
16	Does an entrepreneur's leadership characteristics affect the operation of a local/national SMME	1	2	3	4	5
17	Does the lack of entrepreneurial and management skills affect the operation of a local/national SMME	1	2	3	4	5
18	Does the lack of technical skills affect an entrepreneur's ability to communicate effectively?	1	2	3	4	5
19	As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business	1	2	3	4	5

What impact does digitalisation have on the emerging rural entrepreneur in rural KwaZulu Natal Province?

		<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
20	Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones	1	2	3	4	5
21	Technology and online marketing can promote the rural local/national market	1	2	3	4	5

## APPENDIX D: ETHICAL CLEARANCE LETTER



17 October 2022

Ms F Langry  
25 Conyngham Avenue  
Parkhill  
Durban North  
4051

Dear Ms Langry

**The influence of modern technology on emerging entrepreneurs in rural KwaZulu-Natal (KZN)**

**Ethics Clearance Number: IREC 014/22**

The DUT-Institutional Research Ethics Committee acknowledges receipt of your notification regarding the piloting of your data collection tool.

Kindly ensure that participants used for the pilot study are not part of the main study.

Please note that **FULL APPROVAL** is granted to your research proposal. You may proceed with data collection.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the DUT-IREC according to the DUT-IREC SOP's.

Please note that any deviations from the approved proposal require the approval of the DUT-IREC as outlined in the DUT-IREC SOP's.

Yours Sincerely

\_\_\_\_\_  
Prof J K Adam  
Chairperson: DUT-IREC

## APPENDIX E: FREQUENCY TABLES

### Age group (years)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 - 25	93	24.2	24.2	24.2
	26 - 30	132	34.4	34.4	58.6
	31 - 35	79	20.6	20.6	79.2
	36 - 40	46	12.0	12.0	91.1
	41 - 50	24	6.3	6.3	97.4
	> 50	10	2.6	2.6	100.0
	Total	384	100.0	100.0	

### Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	190	49.5	49.5	49.5
	Female	194	50.5	50.5	100.0
	Total	384	100.0	100.0	

### Highest qualification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary Schooling	16	4.2	4.2	4.2
	Secondary Schooling	87	22.7	22.7	26.8
	Matric	203	52.9	52.9	79.7
	Diploma/Bachelor's Degree	75	19.5	19.5	99.2
	Honour's Degree	3	0.8	0.8	100.0
	Total	384	100.0	100.0	

### Sector

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hair Salon / Barbershop/Beauty Parlour	61	15.9	15.9	15.9
	Food and Beverage	57	14.8	14.8	30.7
	Spaza Shop Owner	56	14.6	14.6	45.3
	Car Wash	25	6.5	6.5	51.8
	Auto Mechanic	19	4.9	4.9	56.8
	Construction	27	7.0	7.0	63.8
	Farm Produce	17	4.4	4.4	68.2
	Trade and Accommodation	23	6.0	6.0	74.2
	Transport and Communication	35	9.1	9.1	83.3
	Other	64	16.7	16.7	100.0
	Total	384	100.0	100.0	

**Ownership structure of the business**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sole proprietor/ Family Business	145	37.8	37.8	37.8
	Partnership Business	135	35.2	35.2	72.9
	Close Corporation	29	7.6	7.6	80.5
	Other	75	19.5	19.5	100.0
	Total	384	100.0	100.0	

**For how many years have you owned/operated this business?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - 5	258	67.2	67.2	67.2
	6 - 10	105	27.3	27.3	94.5
	11 - 15	16	4.2	4.2	98.7
	16 - 20	3	0.8	0.8	99.5
	21 - 25	2	0.5	0.5	100.0
	Total	384	100.0	100.0	

**How is the business operated in terms of infrastructure?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Residential premise such as garage/outbuilding etc	134	34.9	34.9	34.9
	Street corner or pavement or tuck shop	72	18.8	18.8	53.6
	Stall/table/ container in a designated trading area	102	26.6	26.6	80.2
	Door to door selling	8	2.1	2.1	82.3
	Car/truck or any other form of transport method	40	10.4	10.4	92.7
	Online-Facebook marketplace/WhatsApp/Telesales/Instagram	28	7.3	7.3	100.0
	Total	384	100.0	100.0	

**How is the business operated in terms of business rights?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I own the premises from which the business operates	115	29.9	29.9	29.9
	I rent or have rights to use the premises from which the business operates	185	48.2	48.2	78.1
	I own the vehicles/equipment that I use in the business	17	4.4	4.4	82.6
	The business is a part time/temporary side hustle	2	0.5	0.5	83.1
	The business is seasonal	1	0.3	0.3	83.3
	I have the rights to use the business name and operate under this name	64	16.7	16.7	100.0
	Total	384	100.0	100.0	

**Marketing management**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	26	6.8	100.0	100.0
Missing	System	358	93.2		
Total		384	100.0		

**Human resource management**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	19	4.9	100.0	100.0
Missing	System	365	95.1		
Total		384	100.0		

**Business management**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	37	9.6	100.0	100.0
Missing	System	347	90.4		
Total		384	100.0		

**Building and construction**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	16	4.2	100.0	100.0
Missing	System	368	95.8		
Total		384	100.0		

**Social and community-based education**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	12	3.1	100.0	100.0

Missing	System	372	96.9		
Total		384	100.0		

**Beauty and Skin care**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	35	9.1	100.0	100.0
Missing	System	349	90.9		
Total		384	100.0		

**Artisan and Trade**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	17	4.4	100.0	100.0
Missing	System	367	95.6		
Total		384	100.0		

**I have access to the internet via a smartphone or other technological device**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	19	4.9	4.9	4.9
	Disagree	42	10.9	10.9	15.9
	Neutral	41	10.7	10.7	26.6
	Agree	234	60.9	60.9	87.5
	Strongly Agree	48	12.5	12.5	100.0
	Total	384	100.0	100.0	

**Broadband is available in my area, and I have access to the internet**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	62	16.1	16.1	16.1
	Disagree	195	50.8	50.8	66.9
	Neutral	45	11.7	11.7	78.6
	Agree	71	18.5	18.5	97.1
	Strongly Agree	11	2.9	2.9	100.0
	Total	384	100.0	100.0	

**I use modern technology to promote my business**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	48	12.5	12.5	12.5
	Disagree	162	42.2	42.2	54.7
	Neutral	32	8.3	8.3	63.0
	Agree	112	29.2	29.2	92.2
	Strongly Agree	30	7.8	7.8	100.0
	Total	384	100.0	100.0	

**Modern technology is used as source of information to access local/national markets**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	35	9.1	9.1	9.1
	Disagree	140	36.5	36.5	45.6
	Neutral	64	16.7	16.7	62.2
	Agree	119	31.0	31.0	93.2
	Strongly Agree	26	6.8	6.8	100.0
	Total	384	100.0	100.0	

**Technology and online marketing can promote and grow the local/national markets**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	35	9.1	9.1	9.1
	Disagree	82	21.4	21.4	30.5
	Neutral	87	22.7	22.7	53.1
	Agree	156	40.6	40.6	93.8
	Strongly Agree	24	6.3	6.3	100.0
	Total	384	100.0	100.0	

**In our business employees are encouraged and motivated to submit innovative ideas**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	36	9.4	9.4	9.4
	Disagree	124	32.3	32.3	41.7
	Neutral	51	13.3	13.3	54.9
	Agree	140	36.5	36.5	91.4
	Strongly Agree	33	8.6	8.6	100.0
	Total	384	100.0	100.0	

**In our business our employees are skilled and can navigate the use of IoT in line with the business**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	78	20.3	20.3	20.3
	Disagree	199	51.8	51.8	72.1
	Neutral	38	9.9	9.9	82.0
	Agree	58	15.1	15.1	97.1
	Strongly Agree	11	2.9	2.9	100.0
	Total	384	100.0	100.0	

**In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	64	16.7	16.7	16.7
	Disagree	177	46.1	46.1	62.8
	Neutral	56	14.6	14.6	77.3
	Agree	77	20.1	20.1	97.4
	Strongly Agree	10	2.6	2.6	100.0
	Total	384	100.0	100.0	

**In our business we train our employees on how to use modern technology such as online business platforms**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	74	19.3	19.3	19.3
	Disagree	212	55.2	55.2	74.5
	Neutral	40	10.4	10.4	84.9
	Agree	44	11.5	11.5	96.4
	Strongly Agree	14	3.6	3.6	100.0
	Total	384	100.0	100.0	

**Technology has an impact in operating a local/national business**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	32	8.3	8.3	8.3
	Disagree	113	29.4	29.4	37.8
	Neutral	77	20.1	20.1	57.8
	Agree	147	38.3	38.3	96.1
	Strongly Agree	15	3.9	3.9	100.0
	Total	384	100.0	100.0	

**The costs of internet are very high in terms of purchasing data bundles and Wi-Fi access**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	18	4.7	4.7	4.7
	Neutral	49	12.8	12.8	17.4
	Agree	215	56.0	56.0	73.4
	Strongly Agree	102	26.6	26.6	100.0
	Total	384	100.0	100.0	

**I believe that you need to have special skills to be able to use technology online**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	30	7.8	7.8	7.8
	Disagree	58	15.1	15.1	22.9
	Neutral	35	9.1	9.1	32.0
	Agree	232	60.4	60.4	92.4
	Strongly Agree	29	7.6	7.6	100.0
	Total	384	100.0	100.0	

**Access to finance affects the ability to grow our business**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	15	3.9	3.9	3.9
	Disagree	51	13.3	13.3	17.2
	Neutral	29	7.6	7.6	24.7
	Agree	218	56.8	56.8	81.5
	Strongly Agree	71	18.5	18.5	100.0
	Total	384	100.0	100.0	

**I believe that local municipalities provide adequate support for rural businesses when it comes to ICT infrastructure**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	47	12.2	12.2	12.2
	Disagree	287	74.7	74.7	87.0
	Neutral	50	13.0	13.0	100.0
	Total	384	100.0	100.0	

**The local market is very small to sell our business' products**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	89	23.2	23.2	23.2
	Disagree	103	26.8	26.8	50.0
	Neutral	99	25.8	25.8	75.8
	Agree	76	19.8	19.8	95.6
	Strongly Agree	17	4.4	4.4	100.0
	Total	384	100.0	100.0	

**An entrepreneur's leadership characteristics affects the operation of a local/national SMME**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	1.8	1.8	1.8
	Disagree	53	13.8	13.8	15.6
	Neutral	79	20.6	20.6	36.2
	Agree	152	39.6	39.6	75.8
	Strongly Agree	93	24.2	24.2	100.0
	Total	384	100.0	100.0	

**The lack of entrepreneurial and management skills affects the operation of a local/national SMME**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	24	6.3	6.3	6.3
	Disagree	124	32.3	32.3	38.5
	Neutral	106	27.6	27.6	66.1
	Agree	117	30.5	30.5	96.6
	Strongly Agree	13	3.4	3.4	100.0
	Total	384	100.0	100.0	

**The lack of technical skills affects an entrepreneur's ability to communicate effectively?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	30	7.8	7.8	7.8
	Disagree	146	38.0	38.0	45.8
	Neutral	100	26.0	26.0	71.9
	Agree	94	24.5	24.5	96.4
	Strongly Agree	14	3.6	3.6	100.0
	Total	384	100.0	100.0	

**As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	1.8	1.8	1.8
	Disagree	83	21.6	21.6	23.4
	Neutral	120	31.3	31.3	54.7
	Agree	122	31.8	31.8	86.5
	Strongly Agree	52	13.5	13.5	100.0
	Total	384	100.0	100.0	

**Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	20	5.2	5.2	5.2
	Disagree	150	39.1	39.1	44.3
	Neutral	91	23.7	23.7	68.0
	Agree	105	27.3	27.3	95.3
	Strongly Agree	18	4.7	4.7	100.0
	Total	384	100.0	100.0	

**Technology and online marketing can promote the rural local/national market**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	2.3	2.3	2.3
	Disagree	15	3.9	3.9	6.3
	Neutral	165	43.0	43.0	49.2
	Agree	163	42.4	42.4	91.7
	Strongly Agree	32	8.3	8.3	100.0
	Total	384	100.0	100.0	



## APPENDIX G: CHI SQUARE TEST

	Chi-Square	df	Asymp. Sig.
Age group (years)	164,531	5	< 0.001
Gender	0,042	1	0.838
Highest qualification	327,823	4	< 0.001
Sector	83,708	9	< 0.001
Ownership structure of the business	92,208	3	< 0.001
For how many years have you owned/operated this business?	629,776	4	< 0.001
How is the business operated in terms of infrastructure?	178,375	5	< 0.001
How is the business operated in terms of business rights?	426,000	5	< 0.001
I have access to the internet via a smartphone or other technological device	408,526	4	< 0.001
Broadband is available in my area, and I have access to the internet	254,750	4	< 0.001
I use modern technology to promote my business	176,104	4	< 0.001
Modern technology is used as source of information to access local/national markets	133,682	4	< 0.001
Technology and online marketing can promote and grow the local/national markets	142,432	4	< 0.001
In our business employees are encouraged and motivated to submit innovative ideas	136,339	4	< 0.001
In our business our employees are skilled and can navigate the use of IoT in line with the business	275,036	4	< 0.001
In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers	196,599	4	< 0.001
In our business we train our employees on how to use modern technology such as online business platforms	321,104	4	< 0.001
Technology has an impact in operating a local/national business	157,094	4	< 0.001
The costs of internet are very high in terms of purchasing data bundles and Wi-Fi access	234,271	3	< 0.001
I believe that you need to have special skills to be able to use technology online	399,255	4	< 0.001
Access to finance affects the ability to grow our business	348,187	4	< 0.001
I believe that local municipalities provide adequate support for rural businesses when it comes to ICT infrastructure	296,297	2	< 0.001
The local market is very small to sell our business' products	63,865	4	< 0.001
An entrepreneur's leadership characteristics affects the operation of a local/national SMME	147,927	4	< 0.001
The lack of entrepreneurial and management skills affects the operation of a local/national SMME	150,453	4	< 0.001
The lack of technical skills affects an entrepreneur's ability to communicate effectively?	153,083	4	< 0.001
As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business	122,849	4	< 0.001
Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones	169,776	4	< 0.001

## APPENDIX H: RELIABILITY TEST

### Reliability

		Notes
Output Created		02-JUN-2023 12:09:32
Comments		
Input	Data	C:\Users\OneDrive\Stats Analysis\2023\Fiona Langry\Fiona - Data.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	384
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax	RELIABILITY /VARIABLES=B1 B2 B3 B4 B5 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.	
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00

### Scale: ALL VARIABLES

#### Case Processing Summary

		N	%
Cases	Valid	384	100.0
	Excluded <sup>a</sup>	0	0.0
	Total	384	100.0

a. Listwise deletion based on all variables in the procedure.

#### Reliability Statistics

Cronbach's Alpha	N of Items
0.785	5

**Reliability**

		Notes	
Output Created			02-JUN-2023 12:09:44
Comments			
Input	Data	C:\Users\OneDrive\Stats Analysis\2023\Fiona Langry\Fiona - Data.sav	
	Active Dataset	DataSet3	
	Filter	<none>	
	Weight	<none>	
	Split File	<none>	
	N of Rows in Working Data File		384
	Matrix Input		
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.	
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.	
Syntax		RELIABILITY /VARIABLES=C6 C7 C8 C9 C10 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.	
Resources	Processor Time		00:00:00.00
	Elapsed Time		00:00:00.00

**Scale: ALL VARIABLES**

		N	%
Cases	Valid	384	100.0
	Excluded <sup>a</sup>	0	0.0
	Total	384	100.0

a. Listwise deletion based on all variables in the procedure.

Cronbach's Alpha	N of Items
0.706	5

**Reliability**

		Notes
Output Created		02-JUN-2023 12:11:12
Comments		
Input	Data	C:\Users\OneDrive\Stats Analysis\2023\Fiona Langry\Fiona - Data.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	384
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax	RELIABILITY /VARIABLES=D11 D12 D13 D14 D15 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /SUMMARY=TOTAL.	
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00

**Scale: ALL VARIABLES**

**Case Processing Summary**

		N	%
Cases	Valid	384	100.0
	Excluded <sup>a</sup>	0	0.0
	Total	384	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
------------------	------------

**Reliability**

		Notes
Output Created		02-JUN-2023 12:11:47
Comments		
Input	Data	C:\Users\OneDrive\Stats Analysis\2023\Fiona Langry\Fiona - Data.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	384
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=E16 E17 E18 E19 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /SUMMARY=TOTAL.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

**Scale: ALL VARIABLES**

**Case Processing Summary**

		N	%
Cases	Valid	384	100.0
	Excluded <sup>a</sup>	0	0.0
	Total	384	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
0.583	4

**Reliability**

		Notes
Output Created		02-JUN-2023 12:12:02
Comments		
Input	Data	C:\Users\OneDrive\Stats Analysis\2023\Fiona Langry\Fiona - Data.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	384
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=F20 F21 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /SUMMARY=TOTAL.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00

**Scale: ALL VARIABLES**

**Case Processing Summary**

		N	%
Cases	Valid	384	100.0
	Excluded <sup>a</sup>	0	0.0
	Total	384	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
0.463	2

**Reliability**

		Notes
Output Created		02-JUN-2023 12:12:30
Comments		
Input	Data	C:\Users\OneDrive\Stats Analysis\2023\Fiona Langry\Fiona - Data.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	384
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax	RELIABILITY /VARIABLES=B1 B2 B3 B4 B5 C6 C7 C8 C9 C10 D11 D12 D13 D14 D15 E16 E17 E18 E19 F20 F21 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /SUMMARY=TOTAL.	
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00

**Scale: ALL VARIABLES**

**Case Processing Summary**

		N	%
Cases	Valid	384	100.0
	Excluded <sup>a</sup>	0	0.0
	Total	384	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
0.805	21

## APPENDIX I: FACTOR ANALYSIS

### Factor Analysis

		Notes
Output Created		02-JUN-2023 12:16:58
Comments		
Input	Data	C:\Users\OneDrive\Stats Analysis\2023\Fiona Langry\Fiona - Data.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	384
Missing Value Handling	Definition of Missing	MISSING=EXCLUDE: User-defined missing values are treated as missing.
	Cases Used	LISTWISE: Statistics are based on cases with no missing values for any variable used.
Syntax		FACTOR
		/VARIABLES B1 B2 B3 B4 B5 C6 C7 C8 C9 C10 D13 D14 D15 E16 E17 E18 E19 F20 F21
		/MISSING LISTWISE
		/ANALYSIS B1 B2 B3 B4 B5 C6 C7 C8 C9 C10 D13 D14 D15 E16 E17 E18 E19 F20 F21
		/PRINT INITIAL KMO EXTRACTION ROTATION
		/CRITERIA FACTORS(5) ITERATE(25)
		/EXTRACTION PC
	/CRITERIA ITERATE(25)	
	/ROTATION VARIMAX	
	/METHOD=CORRELATION.	
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00
	Maximum Memory Required	44288 (43,250K) bytes

#### KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.822
Bartlett's Test of Sphericity	Approx. Chi-Square	2042.436
	df	171
	Sig.	0.000

Section	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Bartlett's Test of Sphericity		
		Approx. Chi-Square	df	Sig.
All items	0.822	2042.436	171	0.000

### Communalities

	Initial	Extraction
I have access to the internet via a smartphone or other technological device	1.000	0.352
Broadband is available in my area, and I have access to the internet	1.000	0.433
I use modern technology to promote my business	1.000	0.740
Modern technology is used as source of information to access local/national markets	1.000	0.704
Technology and online marketing can promote and grow the local/national markets	1.000	0.715
In our business employees are encouraged and motivated to submit innovative ideas	1.000	0.572
In our business our employees are skilled and can navigate the use of IoT in line with the business	1.000	0.622
In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers	1.000	0.598
In our business we train our employees on how to use modern technology such as online business platforms	1.000	0.667
Technology has an impact in operating a local/national business	1.000	0.557
Access to finance affects the ability to grow our business	1.000	0.639
I believe that local municipalities provide adequate support for rural businesses when it comes to ICT infrastructure	1.000	0.554
The local market is very small to sell our business' products	1.000	0.425
An entrepreneur's leadership characteristics affects the operation of a local/national SMME	1.000	0.655
The lack of entrepreneurial and management skills affects the operation of a local/national SMME	1.000	0.503
The lack of technical skills affects an entrepreneur's ability to communicate effectively?	1.000	0.291
As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business	1.000	0.681
Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones	1.000	0.470
Technology and online marketing can promote the rural local/national market	1.000	0.467

Extraction Method: Principal Component Analysis.

Component	Total Variance Explained								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.004	26.335	26.335	5.004	26.335	26.335	3.471	18.266	18.266
2	1.756	9.240	35.576	1.756	9.240	35.576	2.091	11.005	29.272
3	1.525	8.025	43.601	1.525	8.025	43.601	1.881	9.902	39.174
4	1.315	6.919	50.520	1.315	6.919	50.520	1.716	9.031	48.205
5	1.046	5.508	56.028	1.046	5.508	56.028	1.486	7.823	56.028
6	1.041	5.477	61.504						
7	0.877	4.616	66.121						
8	0.858	4.516	70.637						
9	0.810	4.265	74.902						
10	0.672	3.535	78.437						
11	0.667	3.509	81.946						
12	0.627	3.302	85.249						
13	0.560	2.948	88.197						
14	0.498	2.619	90.816						
15	0.454	2.389	93.206						
16	0.369	1.944	95.150						
17	0.353	1.858	97.008						
18	0.303	1.594	98.601						
19	0.266	1.399	100.000						

Extraction Method: Principal Component Analysis.

**Component Matrix<sup>a</sup>**

	Component				
	1	2	3	4	5
I have access to the internet via a smartphone or other technological device	0.487	-	0.054	-	-
Broadband is available in my area, and I have access to the internet	0.501	-	0.098	0.073	0.311
I use modern technology to promote my business	0.745	-	-	-	-
Modern technology is used as source of information to access local/national markets	0.789	-	-	-	-
Technology and online marketing can promote and grow the local/national markets	0.718	-	-	-	-
In our business employees are encouraged and motivated to submit innovative ideas	0.422	0.121	0.588	0.058	-
In our business our employees are skilled and can navigate the use of IoT in line with the business	0.516	-	0.352	0.412	0.154
In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers	0.714	-	-	-	0.148
In our business we train our employees on how to use modern technology such as online business platforms	0.600	-	0.118	0.039	0.417
Technology has an impact in operating a local/national business	0.712	-	-	-	-
Access to finance affects the ability to grow our business	0.123	0.222	-	0.039	0.254
I believe that local municipalities provide adequate support for rural businesses when it comes to ICT infrastructure	0.135	0.028	0.246	-	0.541
The local market is very small to sell our business' products	0.287	-	-	0.520	-
An entrepreneur's leadership characteristics affects the operation of a local/national SMME	0.222	0.239	0.106	-	0.062
The lack of entrepreneurial and management skills affects the operation of a local/national SMME	0.395	0.330	-	0.450	0.187
The lack of technical skills affects an entrepreneur's ability to communicate effectively?	0.459	0.266	0.008	0.006	0.055
As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business	0.366	0.607	-	-	0.216
Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones	0.304	0.493	0.350	0.096	-
Technology and online marketing can promote the rural local/national market	0.491	0.102	0.293	0.019	0.221
			0.200	0.403	-
					0.111

Extraction Method: Principal Component Analysis.

a. 5 components extracted.

**Rotated Component Matrix<sup>a</sup>**

	Component				
	1	2	3	4	5
I have access to the internet via a smartphone or other technological device	0.555	0.094	0.147	-	-
Broadband is available in my area, and I have access to the internet	0.267	-	0.574	0.177	-
I use modern technology to promote my business	0.845	0.113	0.111	0.033	0.008
Modern technology is used as source of information to access local/national markets	0.781	0.171	0.161	0.195	-
Technology and online marketing can promote and grow the local/national markets	0.803	-	0.077	0.216	0.132
In our business employees are encouraged and motivated to submit innovative ideas	0.229	0.476	0.185	0.111	-
In our business our employees are skilled and can navigate the use of IoT in line with the business	0.128	0.161	0.529	0.465	-
In our business we make use of modern facilities such as broadband/fibre connection, laptop usage and photocopiers	0.616	0.123	0.443	0.012	0.083
In our business we train our employees on how to use modern technology such as online business platforms	0.328	-	0.728	0.161	-
Technology has an impact in operating a local/national business	0.592	0.166	0.169	0.369	0.119
Access to finance affects the ability to grow our business	0.074	-	-	0.123	0.785
I believe that local municipalities provide adequate support for rural businesses when it comes to ICT infrastructure	0.030	0.133	0.533	-	0.054
The local market is very small to sell our business' products	0.084	-	0.141	0.619	-
An entrepreneur's leadership characteristics affects the operation of a local/national SMME	-	0.802	-	-	0.068
The lack of entrepreneurial and management skills affects the operation of a local/national SMME	-	0.435	0.246	0.459	0.205
The lack of technical skills affects an entrepreneur's ability to communicate effectively?	0.260	0.415	0.188	0.102	0.076
As the business climate changes, an entrepreneur must adapt the business strategy in order to fulfil the growth goals of the business	0.189	0.503	0.045	-	0.625
Rural entrepreneurship has developed due to the use of digital technologies such as online trading and usage of smartphones	0.173	0.640	-	0.024	-
Technology and online marketing can promote the rural local/national market	0.262	0.200	0.056	0.571	0.170

Extraction Method: Principal Component Analysis.


Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 9 iterations.

Component Transformation Matrix					
Component	1	2	3	4	5
1	0.767	0.338	0.430	0.330	0.061
2	-0.196	0.858	-0.291	-0.110	0.358
3	-0.192	0.382	0.296	-0.177	-0.836
4	-0.436	0.053	0.055	0.896	-0.045
5	-0.383	-0.014	0.800	-0.214	0.410

Extraction Method: Principal Component Analysis.  
 Rotation Method: Varimax with Kaiser Normalization.

## APPENDIX J: TURNITIN REPORT




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## APPENDIX K: LETTER FROM EDITOR

5 October 2023

To whom it may concern

### **LANGUAGE EDITING REPORT: FIONA LANGRY (Reg. No 22175849)**

This report confirms that the PhD thesis titled “**The influence of modern technology on Emerging Entrepreneurs in Rural KwaZulu-Natal (KZN) Province**” submitted by **Fiona Langry of the Faculty of Management Sciences, specialising in Business Administration, Durban University of Technology** has been edited for language. The editing process was undertaken to ensure that the thesis is free from such English language errors as (but not limited to) those of clarity, coherence, grammar, punctuation, spelling, style and syntax. Neither the research contents nor the authors intention was altered in any way.

Should you have any questions or comments, please do not hesitate to contact me.

Sincerely

Dr V Moodley

Cell: 0829390752

Email: [vadivelumoodley@gmail.com](mailto:vadivelumoodley@gmail.com)