DIGITAL READINESS FOR SMALL, MEDIUM, AND MICRO ENTERPRISES (SMMEs)

Senamela Klaas, Stella Bvuma

University of Johannesburg, Department of Applied Information Systems.

Abstract: This research study takes a qualitative approach to investigate the factors that influence the digital readiness of Small, Medium, and Micro Enterprises (SMMEs) in rural areas. Using a customized Technology Organization Environment (TOE) Framework, the study examines both external and internal factors, including the existing digital infrastructure, digital skills, and the SMME owners/managers' attitude towards digital adoption. The findings reveal that rural SMMEs face unique challenges, including limited access to technical infrastructure, lack of digital skills, poor internet connectivity and a lack of reliable technology training opportunities. These barriers act as hindrances to their digital transformation, making it vital to explore and address these issues comprehensively. The study relies exclusively on in-depth interviews with SMME owners and managers to collect data and analyze the factors that shape the digital readiness and innovation in SMMEs, benefiting both local communities and global contexts. Additionally, valuable insights are offered regarding the digital readiness of SMMEs in rural areas by considering various factors, environmental factors, and managerial factors.

It also delves into the effects, on society the economy and progress that stem from the findings of this study.

Introduction- In an increasingly digital world, businesses worldwide are recognizing the imperative of embracing digital technologies. This trend holds true not only for large enterprises but is particularly crucial for Small, Medium, and Micro Enterprises (SMMEs), which are the lifeblood of economic growth and development. This text delves into the context of South Africa, a nation characterized by diverse settings, to shed light on the benefits and challenges associated with digital readiness among SMMEs, specifically in rural areas. These rural SMMEs, much like their urban counterparts, play a pivotal role in bolstering the country's economic growth.

As this study elucidates, SMMEs in rural areas encounter a unique set of challenges, including limited access to technical infrastructure, insufficient skills, and suboptimal internet connectivity. These obstacles act as hindrances to their digital transformation, making it vital to explore and address these issues comprehensively. By overcoming these barriers, it is possible to ensure the long-term viability and competitiveness of rural SMMEs, ultimately contributing to the overall development of South Africa.

The significance of studying digital readiness among SMMEs extends far beyond the business realm. Economic and social benefits, such as accelerated growth, job creation, income generation, and community development, all stem from the success of these enterprises. SMMEs, whether in



urban or rural settings, are the driving force behind economic expansion, holding the potential to combat unemployment, poverty, and support sustainable communities.

While previous studies have explored the digital readiness of SMMEs in South Africa, there remains a gap in research specific to SMMEs in rural areas. This research aims to bridge that gap by investigating the factors influencing digital readiness in South Africa's rural SMMEs. It delves into a comprehensive analysis of external and internal factors, such as digital infrastructure accessibility, technology affordability, skills, awareness, and business owner attitudes. By identifying the unique barriers and opportunities in these areas, this study seeks to pave the way for informed policymaking, programs, and interventions that can promote digital readiness among rural SMMEs, enabling them to harness the benefits of digital technologies effectively. **Keywords:-** Digital Readiness ,Rural SMMEs, South Africa Challenges, Economic Growth

Methology

1. Theoretical Frameworks

Research in the field of Information and Communication Technology (ICT) adoption and digital readiness in Small, Medium, and Micro Enterprises (SMMEs) has extensively employed various theoretical frameworks to understand the factors influencing the adoption of ICT and digital readiness. This summary provides an overview of six such widely used theoretical frameworks:

- 1. Technological, Organizational, and Environmental Framework (TOE): This framework explores the complex dynamics of how organizations adopt innovative solutions by focusing on three dimensions: technology, organization, and environment. These dimensions collectively shape the likelihood of enterprises adopting and successfully implementing innovations. TOE considers technological practices, organizational attributes, and external factors like competitors, suppliers, and regulatory bodies.
- 2. Social Cognitive Theory (SCT): SCT delves into human motivation, thinking patterns, and behavior, emphasizing the role of self-efficacy, individuals' belief in their ability to perform tasks. SCT explores how self-efficacy influences behavior choices, effort, and the ability to overcome obstacles.
- 3. Technology Acceptance Model (TAM): Developed in 1989, TAM aims to explain why users accept or reject computer technology. It centers on two key aspects: Perceived Usefulness and Perceived Ease of Use, examining how users' perceptions of technology's usability and usefulness influence their acceptance and intentions to use it.
- 4. Theory of Planned Behavior (TPB): TPB focuses on individuals' intentions to act, which are influenced by their attitudes, social norms, and perceived control over their behavior. It highlights the role of beliefs, attitudes, and perceived control in shaping decision-making processes and behavior.
- 5. Theory of Reasoned Action (TRA): TRA explores the factors influencing people's intentions and their readiness to engage in behaviors. It looks at attitudes toward behavior and subjective norms, which reflect an individual's judgment of a behavior and the perceived influence from others, respectively.



- 6. Diffusion of Innovation Theory (IDT): IDT, coined by sociologist Everett Rogers, is a framework that examines how technology integrates into systems. It defines innovation as novel ideas, practices, or objects, and focuses on communication and adoption processes over time among members of a system. IDT considers attributes such as advantage, compatibility, complexity, observability, and trialability in shaping innovation adoption.
- 7. These theoretical frameworks provide valuable insights into the adoption of ICT and digital readiness, offering researchers a basis for understanding and analyzing the multifaceted aspects of technology adoption among SMMEs.

2. Chosen Theoretical Framework for this study

For this study, the Technological, Organizational and Environmental (TOE) framework was selected. Among the frameworks the TOE framework stands out due to its multi-dimensional approach that aligns well with the complexity of the research objectives and the specific contextual factors relevant to rural SMMEs. However, it is worth noting that in this study the researcher has also examined managerial context and incorporated managerial factors into the framework to meet the study's objective of examining the SMMEs' owner attitudes.

To begin with one of the advantages of utilizing the TOE framework is its ability to explore how technological factors interact with organizational dynamics and environmental context within which these SMMEs operate (Sani, Rahman, Nawaningtyas, Budiyantara, & Wiliani, 2021). This alignment is crucial as it allows the researcher to gain an understanding of the SMMEs digital readiness. By diving into aspects like technological infrastructure, internal organizational structures of these SMMEs and external environmental influences, the study can uncover the intricate elements that impact the SMMEs' digital readiness.

Another strength of the TOE framework is its ability to consider the role of stakeholders in the adoption of digital technologies (Mukherjee, Chittipaka, & Baral, 2022). This becomes particularly relevant when considering areas where governmental policies and support have a role in shaping the digital landscape for SMMEs. By taking into account government initiatives, skill development programs and infrastructure provision, the study can gain a grasp of the ecosystem within which these SMMEs operate (Mwapwele, Marais, Dlamini, & Van Biljon, 2019).

In essence, the integrative nature of the TOE framework offers this study a structure to explore the aspects of digital readiness for rural SMMEs. By addressing environmental, organizational, environmental, and managerial factors, the aim is to gain a comprehensive understanding of the challenges, opportunities and strategies needed to enhance digital readiness of SMMEs. Below is the traditional framework of TOE, which will be explained in detail to demonstrate its connection with this study.





Figure 1. Traditional Technological, Organizational and Environmental Framework (TOE) In the context of this study, the External Task Environment of the TOE refers to the Environmental Factors, which indicates the willingness of SMMEs to collaborate, the digital skills availability in the area they operate in and the government support and initiatives.

Table 4. Environmental Factors

Environmental Factors	Description
Willingness to collaborate	This means that SMMEs in rural areas are willing to work with other businesses, organizations, and institutions to improve their digital readiness. This can be done by sharing knowledge, resources, and expertise. By working together, SMMEs can overcome challenges and achieve their goals more easily.
Digital skills availability	This means that people in the rural area where the SMMEs operate have the necessary digital skills to use technology effectively. This includes skills such as using computers, smartphones, and the internet. A workforce with digital skills is essential for SMMEs to adopt and use digital technologies.
Government support and initiatives	This means that the government supports the adoption of digital technologies by SMMEs. This can be done through policies, funding, training programs, and infrastructure development. Government support can help to remove barriers to digital adoption and provide SMMEs with the resources they need to succeed.

The Organization in the context of this study refers to the Organizational Factors, which indicates the digital skills of the SMMEs employees, the cultural adaptability and change readiness and attitude towards digital transformation.

 Table 5. Organizational Factors



Organizational Factors	Description
Digital skills of employees	This means that the employees of SMMEs have the necessary skills to use digital technologies effectively. This includes skills such as using computers, smartphones, and the internet. Employees with digital skills are essential for SMMEs to adopt and use digital technologies.
Cultural adaptability and change readiness	This means that the SMME is open to change and willing to adapt to new technologies. The SMMEs culture should be supportive of digital transformation and should not resist change.
Attitude towards digital transformation	This means that the SMME has a positive attitude towards digital transformation. The SMME's management and employees should be enthusiastic about adopting new technologies and should be willing to change the way they work.

The Technology in this case refers to the Technological Factors, which highlight the availability and accessibility of digital infrastructure in the area the SMMEs operate, the affordability of technological solutions, and the technology alignment with business needs of the SMMEs. Table 6. Technological Factors

Technological Factors	Description
Availability and accessibility of digital infrastructure	This means that the SMMEs have access to reliable internet connectivity and other digital resources. This is essential for SMMEs to be able to use digital technologies.
Affordability of technological solutions	This means that the SMMEs can afford to invest in the necessary digital technologies. This can be a challenge for SMMEs, as digital technologies can be expensive.
Technology alignment with business needs	This means that the SMME has a clear understanding of how the technology can be used to achieve their specific business objectives. This includes understanding the benefits of the technology, how it can be used to improve processes, and how it can help the SMME to achieve their goals.

Lastly, in order to gain an understanding of the digital readiness of SMMEs, it is crucial to dive into the perspectives of their owners or managers regarding technology. The existing TOE framework falls short in addressing this aspect, which necessitates customization by introducing a Managerial factor. This factor aims to explore the attitude of SMME owners towards digital readiness. It will assess their level of digital proficiency, knowledge regarding the benefits of information technology, and determination to foster innovation. Table 7. Managerial Factors



Managerial Factors	Description
Digital acumen	This means that the SMME owner or manager has a good understanding of digital technologies and they know how to use them. This is important because it allows the SMME to make informed decisions about which technologies to adopt and how to use them.
Knowledge of IT benefits	This means that the SMME owner or manager understands the potential benefits of using digital technologies in their business. They know how technology can improve their business processes, efficiency, customer engagement, and overall growth. This is important because it motivates the SMME to adopt digital technologies and to use them in a way that benefits their business.
Innovation-driven mindset	This means that the SMME has a clear understanding of how the technology can be used to achieve their specific business objectives. This includes understanding the benefits of the technology, how it can be used to improve processes, and how it can help the SMME to achieve their goals.

The environmental, organizational, technological, and managerial factors together form a customized TOE framework that will guide the study in asking the right questions to achieve its objectives. And below is the customized version of the TOE framework:



Figure 2. Customized TOE framework

In this section the researcher explored Theoretical Frameworks and selected one that is most suitable for this study. Moving forward the researcher will dive into research paradigms and carefully select the one that aligns best with this study's objectives. This discussion will take place in Section 3 which specifically focuses on the aspect of research design.

3. Research Design

3.1 Quantitative and Qualitative Research Paradigms





A research paradigm can be described as a set of beliefs, assumptions, values and practices that influence how researchers' approach and interpret their studies in a field. It encompasses the methodological perspectives that shape the way researchers formulate their research inquiries, collect, and analyze data and draw conclusions. Research paradigms serve as a framework, for comprehending the world conducting research activities and creating knowledge (Rahi & Sciences, 2017).

3.1.1 Quantitative Paradigms

The quantitative research approach operates under the assumption that reality's objective can be quantified and analyzed using statistical methods. Researchers using this approach aim to establish cause and effect relationships between variables and draw conclusions about the population from which their data was gathered (Bryman, 2016).

3.1.2 Qualitative Paradigms

The qualitative research approach is founded on the idea that reality is subjective and emerges from the interactions between individuals and their social surroundings. Qualitative researchers aim to grasp the significance of experiences by gathering in depth and comprehensive data through techniques like interviews, focus groups, and participant observation (Ishtiaq, 2019).

After understanding the differences between these research paradigms, below the researcher explores key characteristics of these paradigms and chooses a suitable research paradigm for this study.

4. Research Paradigm chosen for This Study

Table 8 Highlights the research paradigm chosen in this study, the qualitative research paradigm. Since the primary objective of this study was to provide an in-depth understanding of the current digital readiness landscape for rural SMMEs by analyzing both external factors such as the availability and accessibility of digital infrastructure, the affordability of technology solutions, and government support, as well as internal factors such as digital skills, awareness, and business owner attitudes, it was determined that the qualitative research paradigm was the suitable approach.

The qualitative research paradigm was considered suitable because it allows for an exploration of the interactions between these factors and their specific contextual nuances. Through qualitative methods such as interviews, the researcher aims to capture the narratives, perspectives, and experiences of rural SMME owners. By delving into the details of their thoughts and decision-making processes, the researcher will gain a deeper understanding of the multifaceted dynamics that influence their digital readiness. This qualitative approach does not only assist in identifying which factors are involved but why and how they manifest within the context of rural areas. Moreover, by aligning with the study's research questions' interpretive nature, the qualitative paradigm enables the researcher to explore how SMME owners perceive digital readiness and uncover the underlying drivers or barriers to its adoption.



By adopting this research approach, the study's goal was to go beyond analyzing statistics and statistical significance. Instead, it aimed for an exploration of the intricate factors and real-life experiences that shape the digital landscape for SMMEs in rural areas.

Table 8. Key Characteristics of Quantitative and Qualitative Paradigms (Bryman, 2016; Rahman, 2020; Velez, 2008)

Characteristic	Quantitative Research Paradigm	gm Qualitative Research Paradigm	
Focus	Objective measurement andStatistical analysis	 Understanding the complexities and Variety of human experiences 	
Data collection methods	Surveys Experiments Standardized tests	Interviews Focus groups Participant observation Content analysis	
Data analysis methods	Statistical analysis	Thematic analysis Content analysis Grounded theory	
Strengths	 Generalizability Objectivity Reliability 	Rich descriptions Contextual understanding Flexibility	
Weaknesses	 Lack of contextual understanding, Limited generalizability Potential for bias 	Time-consuming Difficult to quantify Subjective	

In this section, a suitable research paradigm for the study was chosen. The following section will explore sampling techniques and select the most suitable one for the research.

5. Sampling Techniques

Sampling is a method employed by researchers to gather data from a portion of a population referred to as a sample. This approach is necessary because gathering data from the population is often impractical or unfeasible. It is crucial for the sample to accurately represent the population so that researchers can draw conclusions about the population based on the data collected from the sample (Argerich & Cruz-Cázares, 2017; Gentles, Charles, Ploeg, & McKibbon, 2015; Henry, 1990).

There are two main types of sampling techniques: probability sampling and non-probability sampling. The table presented below illustrates the types of sampling techniques categorized as probability sampling and non-probability sampling.

Table 9. Sampling Techniques (Alvi, 2016; Sharma, 2017; Taherdoost, 2016)



Sampling Technique	Description	Classification	Advantages	Disadvantages
Random Sampling	Every member of the population has an equal chance of being selected.	Probability Sampling	Highly representative; minimizes bias	Requires a complete list of population; time- consuming and expensive
Stratified Sampling	Dividing the population into subgroups and then randomly selecting from each subgroup.	Probability Sampling	Ensures representation from each subgroup	Requires knowledge of subgroups; can be complex
Systematic Sampling	Selecting every nth member from a list of the population.	Probability Sampling	Simplicity; good representation with large population	Possible bias if there's a pattern in the list
Convenience Sampling	Choosing participants based on their easy availability.	Non-Probability Sampling	Quick and easy	Not representative; potential bias and limited generalizability
Cluster Sampling	Randomly selecting groups (clusters) from the population.	Probability Sampling	Useful for geographically dispersed population	Can result in clusters that are not representative
Purposive Sampling	Handpicking participants who meet specific criteria.	Non-Probability Sampling	Useful for specific research goals	Potential researcher bias and lack of diversity
Quota Sampling	Dividing the population into subgroups and setting a quota for each subgroup.	Non-Probability Sampling	Simplicity; can represent various groups	Prone to blas; requires selecting participants
Snowball Sampling	Initial participants refer additional participants.	Non-Probability Sampling	Useful for hard-to-reach populations	Can result in biased samples and lack of control
Judgmental Sampling	Selecting participants based on researcher's judgment.	Non-Probability Sampling	Useful when specific expertise is needed	Prone to researcher bias; lack of representativeness

In probability sampling each individual in the population has an opportunity to be chosen for the sample. This is achieved by employing a number generator or another method that guarantees chances for every member of the population to be selected. On the hand in non-probability sampling, not all members of the population have an equal likelihood of being selected for the sample. This approach is adopted when its either impossible or impractical to select a sample (Argerich & Cruz-Cázares, 2017; Gentles et al., 2015; Henry, 1990).

After discussing the functions of the two sampling methods, probability sampling and nonprobability sampling, the following section will proceed to select a sampling technique that is appropriate for this study.

5.1 Chosen Sampling Technique for this Study

Purposive sampling has been chosen as the most suitable technique for this study, aligning with the unique characteristics of the research participants. The study focuses on SMME owners in the rural area of Ga-Phasha, located in the province of Limpopo, South Africa. These participants are directly engaged in their businesses' daily operations and decision-making processes, and they share the common criterion of being SMME owners in this specific rural area. Purposive sampling allows for the deliberate selection of participants with specific traits, ensuring that the sample accurately represents the target group and enhances the significance of the insights gained.

By intentionally selecting SMME owners from the rural area of Ga-Phasha in Limpopo, this study aims to investigate the complex factors influencing their digital readiness. These factors include the availability and accessibility of digital infrastructure, affordability of technology solutions, government support, digital skills, awareness, and business owner attitudes. The use of purposive sampling, driven by the shared identity of being SMME owners in this distinct geographic and



socio-economic context, strengthens the study's ability to uncover meaningful insights regarding their perceptions, challenges, and aspirations in the realm of digital transformation.

The study has chosen this sampling technique and will employ a developed framework for data collection, preparation, analysis, and interpretation from the target population, as detailed in the subsequent section.



5.2 Data Analysis Framework

Figure 3. Data Analysis Framework

This study emphasizes the importance of data collection, as it enables the capture of insights and perspectives from the target population. Specifically, the study focuses on engaging owners of Small, Medium, and Micro Enterprises (SMMEs) in the Ga Phasha region of Limpopo, South Africa. Ga Phasha's significance lies in its role as a thriving center for the mining industry, offering opportunities for SMMEs to prosper. The study aims to answer whether these SMMEs are digitally ready to leverage the opportunities presented by the mining industry and the broader digital landscape.

To gather data, semi-structured interviews will be employed as the primary method. These interviews offer flexibility while focusing on key topics related to digital infrastructure, technology adoption, government support, digital skills, and attitudes toward digital transformation. The interviews will be audio-recorded to capture participants' sentiments, tone, and expressions in their entirety.

The data preparation phase involves converting the audio-recorded interviews into transcribed text for analysis. The transcriptions preserve the authenticity and depth of the conversations, including tone and pauses. Data cleaning follows, ensuring accuracy and consistent formatting across all transcripts, while also anonymizing any personal information to protect confidentiality.

Data analysis involves a combination of open coding, axial coding, and thematic analysis using NVivo. Open coding identifies and labels concepts, ideas, and patterns from the transcripts, breaking down the data into smaller units. Axial coding establishes connections between codes, creating categories and subcategories. Thematic analysis identifies overarching themes that encapsulate participants' narratives, experiences, perspectives, challenges, and opportunities regarding digital readiness in rural SMMEs.

The interpretation and discussion stages are crucial for understanding the results and generating valuable insights. These stages involve a thorough analysis to uncover deeper meanings,



implications, and contextual influences within the data. Triangulation is used to validate findings by comparing them with existing literature and theoretical frameworks.

In the discussion phase, the study addresses research inquiries, compares results with previous studies, and offers insights into the contributions of this study to theory, practice, and policy. It also explores the wider societal impact on the economy and development resulting from the study's findings.

The interpretation and discussion stages serve as a connection between the data and the wider academic conversation, providing valuable insights, advancing knowledge, and offering practical recommendations for promoting digital readiness and innovation in rural SMMEs, benefitting both local and global contexts.

Participants Demographics:

The study provides valuable insights into the digital readiness of Small, Medium, and Micro Enterprises (SMMEs) in rural areas, with a focus on the impact of age, education level, business type, technological factors, organizational factors, environmental factors, and managerial factors. Here are the key findings:

1. Age and Education Level in Digital Readiness:

- Participants' ages ranged from 35 to 50 years, and their education levels varied.

- Older participants with lower educational backgrounds expressed limited digital readiness due to a lack of internet access and confidence in using technology. Younger participants with higher education levels displayed higher digital proficiency and awareness of technology's impact on business operations. Age may have less impact on digital readiness when combined with a higher educational background.

2. Business Type and Digital Readiness: The nature of the SMME's business significantly influences its digital readiness. Engineering-related businesses showed higher digital proficiency, with an emphasis on internet access and digital tools. Non-engineering businesses prioritized simplicity and cost-effectiveness, resulting in limited digital proficiency. Business type plays a vital role in determining SMMEs' digital capabilities.

3. Technological Factors: Challenges related to digital access and affordability were a common concern among participants, affecting their ability to adopt technology effectively. The fit and integration of technology solutions were crucial, as participants preferred user-customized technology that aligned with their needs. The availability of affordable, easy-to-integrate technology solutions is essential to enhance digital readiness for rural SMMEs.

4. Organizational Factors: Digital skills and cultural factors significantly influenced technology adoption. Limited digital proficiency and traditional organizational culture hindered technology adoption. Training and support were essential for improving digital literacy, but participants noted challenges in accessing resources in rural areas. Tailored training programs and a culture of learning can help overcome digital skills and cultural barriers.

5. Environmental Factors: Government support and infrastructure were key factors affecting digital readiness. Limited access to government programs and infrastructure challenges hindered



technology adoption. SMMEs in rural areas expressed a long-term perspective, indicating optimism for future collaboration and competitiveness.

6. Managerial Factors: Openness to technology and managerial influence played a critical role in enhancing digital readiness. SMME owners and managers should embrace technology and prioritize user-friendly, accessible solutions. Managerial attitudes significantly impact technology adoption and overall digital readiness within the organization.

The study highlights the complex interplay of factors that influence digital readiness in rural SMMEs, including age, education, business type, technology, organizational culture, government support, and managerial influence. Addressing these factors is crucial for enhancing the digital readiness of SMMEs in rural areas and promoting their competitiveness in the digital age.

Discussion: It delves into the interconnections between internal and external factors that influence the digital readiness of Small, Medium, and Micro Enterprises (SMMEs). The study addressed key research questions related to external factors, internal factors, government influence, and managerial influence on digital readiness. Here are the main findings:

External Factors Impacting Digital Readiness:

Digital Access and Affordability: Availability and affordability of digital resources, particularly internet access and technology, play a significant role in digital readiness.

Technology Fit and Integration: Challenges associated with implementing and integrating technology solutions pose obstacles for SMMEs. Customizable, user-friendly solutions are crucial for a smooth transition into the digital era.

Internal Factors Impacting Digital Readiness:

Digital Skills and Cultural Factors: Digital proficiency and the influence of traditional organizational culture significantly impact technology adoption.

Training and Support: Participants emphasized the importance of training and support systems in improving digital literacy, highlighting the need for tailored programs.

Government's Influence in Digital Readiness:

Government Support and Infrastructure: Participants acknowledged the role of government support in enhancing digital readiness and highlighted infrastructure challenges. Government intervention in improving infrastructure in rural areas is essential to foster digital readiness.

Managerial Influence Impact on Digital Readiness:

Openness to Technology: SMME owners and managers need to embrace technology, prioritize user-friendly solutions, and support each other in adopting digital tools.

Managerial Influence: Managerial attitudes significantly affect technology adoption within organizations. Managers should lead by example, invest in technology when necessary, and motivate their teams to embrace digital tools.

The findings underline the critical role of both internal and external factors, as well as government support and managerial influence, in shaping the digital readiness of SMMEs in rural areas. Addressing these factors is essential to enhance digital readiness and competitiveness among these enterprises in the digital age.



Conclusion: This in-depth research project thoroughly explored the intricate dynamics that govern digital readiness among SMMEs located in rural areas. The research's primary objective was to gain a comprehensive understanding of how internal and external factors interrelate and contribute to the level of digital readiness of these rural SMMEs when it comes to adopting and integrating digital technologies into their business operations.

The study was concentrated on examining crucial internal factors such as the existing digital infrastructure, digital skills, and the SMME owners/managers' attitude towards digital adoption. Simultaneously, it evaluated external influences like the accessibility of technological infrastructure, availability of government policies, and incentives that can boost the digital transition, as well as the challenges unique to rural settings, such as a lack of reliable internet access and technology training opportunities.

By delving into these dynamics, the research aimed to identify common obstacles and enablers, thereby shedding light on effective strategies to bolster digital readiness amongst rural SMMEs. The ultimate goal is to aid these enterprises in harnessing the power of digital technologies to streamline their operations and improve their competitive edge in today's increasingly digital marketplace.

Practical Implications: For SMME owners and managers, the research emphasizes the importance of cultivating a positive attitude toward technology, investing in digital skills, and fostering a corporate culture that values adaptability and innovation. Technology providers are encouraged to design user-friendly, customizable solutions tailored to the unique needs of rural SMMEs. Policymakers should recognize their role in supporting digital readiness through frameworks, infrastructure improvements, and strategic interventions like customized training programs in partnership with educational institutions.

Theoretical Implications: This study contributes to existing knowledge by presenting a framework that elucidates the multifaceted factors influencing digital readiness in rural SMMEs. It highlights the significance of managerial and organizational factors as drivers for technology adoption, building upon previous research in this domain.

Policy Implications: The findings have the potential to inform policy development. Customized programs and initiatives targeting digital skills, technology integration, and infrastructure upgrades are essential for rural SMMEs. Encouraging collaborative partnerships among government agencies, technology providers, and SMMEs can help bridge digital divides in rural communities. Addressing Limitations: The study acknowledges its limitations, particularly the focus on a specific group of SMMEs in one rural area, limiting the generalizability of findings. Future research should employ more diverse sampling techniques to gain a broader understanding of digital readiness dynamics among rural SMMEs.

Suggesting Future Research: The study identifies gaps and unexplored questions, suggesting directions for future research. These include investigating the impact of cultural factors on technology adaptation, studying the long-term effects of government policies and support systems



on digital readiness, and conducting research in various rural areas to uncover distinct factors influencing digital readiness.

In conclusion, this research unveils the complexity of digital readiness among rural SMMEs, influenced by a range of internal and external factors. Understanding and addressing these factors offers the potential to bridge the digital divide and empower SMMEs to harness digital technology. This research holds significance in driving economic progress, enhancing rural SMME competitiveness, and improving livelihoods in rural communities. It enriches both scholarly discourse and real-world applicability.

References

Ablyazov, T., Asaturova, J., & Koscheyev, V. (2018). Digital technologies: new forms and tools of business activity. Paper presented at the SHS Web of Conferences.

Argerich, J., & Cruz-Cázares, C. J. M. D. (2017). Definition, sampling and results in business angels' research: toward a consensus. 55(2), 310-330.

Aruleba, K., & Jere, N. J. S. A. (2022). Exploring digital transforming challenges in rural areas of South Africa through a systematic review of empirical studies. 16, e01190.

Aymen, R. A., Alhamzah, A., & Bilal, E. J. P. J. o. M. S. (2019). A multi-level study of influence knowledge management small and medium enterprises. 19(1), 21-31.

Backhouse, J., & Cohen, J. (2014). What is a Smart City for information systems research in Africa? Review protocol and initial results. Paper presented at the African cyber citizenship conference 2014 (ACCC2014).

Ballou, K. A. J. J. o. p. n. (1998). A concept analysis of autonomy. 14(2), 102-110.

Belitski, M., Guenther, C., Kritikos, A. S., & Thurik, R. J. S. B. E. (2022). Economic effects of the COVID-19 pandemic on entrepreneurship and small businesses. 1-17.

Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. v. J. M. q. (2013). Digital business strategy: toward a next generation of insights. 471-482.

Bilotta, N. J. I. S. W. (2023). 'Respect'and 'justice' for whom? Culturally irresponsive ethical practices with refugee communities. 66(3), 817-830.

Bouncken, R. B., Kraus, S., & Roig-Tierno, N. J. R. o. M. S. (2021). Knowledge-and innovationbased business models for future growth: Digitalized business models and portfolio considerations. 15(1), 1-14.

Brand, M., Tiberius, V., Bican, P. M., & Brem, A. J. R. o. M. S. (2021). Agility as an innovation driver: towards an agile front end of innovation framework. 15(1), 157-187.

Bryman, A. (2016). Social research methods: Oxford university press.

Bvuma, S., & Marnewick, C. (2020). An information and communication technology adoption framework for small, medium and micro-enterprises operating in townships South Africa. 12(1), 12.

Bvuma, S., & Marnewick, C. J. S. (2020). Sustainable livelihoods of township small, medium and micro enterprises towards growth and development. 12(8), 3149.



Chylinski, M., Heller, J., Hilken, T., Keeling, D. I., Mahr, D., & de Ruyter, K. J. A. M. J. (2020). Augmented reality marketing: A technology-enabled approach to situated customer experience. 28(4), 374-384.

Classen, R.-P., Garbutt, M., & Njenga, J. (2021). Factors Influencing the Adoption of Digital Technologies in South African SMMEs.

Clayton, A. J. J. o. s., & therapy, m. (2023). Commentary on Levine et al.: A tale of two informed consent processes. 49(1), 88-95.

Clemons, E. K., Clemons, E. K. J. N. p. o. p., & transformation, p. A. S. s. g. t. c. a. i. t. a. o. d. (2019). Resources, platforms, and sustainable competitive advantage: How to win and keep on winning. 93-104.

Craig, S. L., McInroy, L. B., Goulden, A., & Eaton, A. D. J. I. J. o. Q. M. (2021). Engaging the senses in qualitative research via multimodal coding: Triangulating transcript, audio, and video data in a study with sexual and gender minority youth. 20, 16094069211013659.

Cuthbertson, R. W., & Furseth, P. I. J. J. o. B. R. (2022). Digital services and competitive advantage: Strengthening the links between RBV, KBV, and innovation. 152, 168-176.

David, O. O., & Grobler, W. J. E. r.-E. i. (2020). Information and communication technology penetration level as an impetus for economic growth and development in Africa. 33(1), 1394-1418. Dinis-Carvalho, J., Sousa, R. M., Moniz, I., Macedo, H., & Lima, R. M. J. S. (2023). Improving the Performance of a SME in the Cutlery Sector Using Lean Thinking and Digital Transformation. 15(10), 8302.

Dlamini, S. L. (2020). Perceived barriers to long-term survival of start-up small, medium and micro enterprises in the ICT industry: a case of Vhembe District Municipality.

Durowoju, S. T. J. E., & Studies, E. (2017). Impact of technological change on small and medium enterprises performance in Lagos state. 17(4 (44)), 743-756.

Ebert, C., & Duarte, C. H. C. J. I. S. (2018). Digital transformation. 35(4), 16-21.

Endris, E., Kassegn, A. J. J. o. I., & Entrepreneurship. (2022). The role of micro, small and medium enterprises (MSMEs) to the sustainable development of sub-Saharan Africa and its challenges: a systematic review of evidence from Ethiopia. 11(1), 20.

Evans, O. (2018). Improved financial performance without improved operational efficiency: the case of Nigerian firms. Paper presented at the Forum Scientiae Oeconomia.

Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. J. M. s. m. r. (2014). Embracing digital technology: A new strategic imperative. 55(2), 1.

Gao, J., Siddik, A. B., Khawar Abbas, S., Hamayun, M., Masukujjaman, M., & Alam, S. S. J. S. (2023). Impact of E-commerce and digital marketing adoption on the financial and sustainability performance of MSMEs during the COVID-19 pandemic: An empirical study. 15(2), 1594.

Gentles, S. J., Charles, C., Ploeg, J., & McKibbon, K. A. J. T. q. r. (2015). Sampling in qualitative research: Insights from an overview of the methods literature. 20(11), 1772-1789.

Gomes, J. G. C., Okano, M. T., Simões, E. A., & Otola, I. J. S. A. D. S. J. (2019). Management strategy and business models in the era of digital transformation. 5(14), 252.



Guest, G., MacQueen, K. M., & Namey, E. E. (2011). Applied thematic analysis: sage publications.

Harrell, M. C., & Bradley, M. (2009). Data collection methods: Semi-structured interviews and focus groups.

Henry, G. T. (1990). Practical sampling (Vol. 21): Sage.

Ishtiaq, M. J. E. L. T. (2019). Book review creswell, JW (2014). research design: qualitative, quantitative and mixed methods approaches . Thousand Oaks, ca: sage. 12(5), 40.

Jacobs, S. (2023). The impact of e-commerce implementation on the profitability of belgian SMES: a quantitative analysis.

Jentoft, N., & Olsen, T. S. J. Q. S. W. (2019). Against the flow in data collection: How data triangulation combined with a 'slow'interview technique enriches data. 18(2), 179-193.

Kademeteme, E., & Twinomurinzi, H. (2019). The role of SME dynamic capabilities on the evaluation of existing ICT. In Proceedings of the South African Institute of Computer Scientists and Information Technologists 2019 (pp. 1-8).

Kazmer, M. M., Xie, B. J. I., community, & society. (2008). Qualitative interviewing in Internet studies: Playing with the media, playing with the method. 11(2), 257-278.

Lassnig, M., Müller, J. M., Klieber, K., Zeisler, A., & Schirl, M. J. J. o. M. T. M. (2022). A digital readiness check for the evaluation of supply chain aspects and company size for Industry 4.0. 33(9), 1-18.

Laurent, A., Weidema, B. P., Bare, J., Liao, X., Maia de Souza, D., Pizzol, M., . . . Verones, F. J. J. o. I. E. (2020). Methodological review and detailed guidance for the life cycle interpretation phase. 24(5), 986-1003.

Lestantri, I. D., Janom, N. B., Aris, R. S., & Husni, Y. J. P. C. S. (2022). The perceptions towards the digital sharing economy among SMEs: Preliminary findings. 197, 82-91.

Luo, S. J. J. o. M. (2022). Digital finance development and the digital transformation of enterprises: based on the perspective of financing constraint and innovation drive. 2022.

MacLoughlin, S., & Hayes, E. J. C. R. (2019). Overcoming resistance to BIM: Aligning a change management method with a BIM implementation strategy. 10.

Maduku, H., & Kaseeram, I. J. D. S. A. (2021). Success indicators among black owned informal Small Micro and Medium Enterprises'(SMMEs) in South Africa. 38(4), 664-682.

Madzvamuse, S., Kadyamatimba, A., & Munyoka, W. (2023). Determinants of eCommerce Adoption by SMEs: Perspectives from the Limpopo Province. Paper presented at the 2023 IST-Africa Conference (IST-Africa).

Mahlori, B., & van der Lingen, E. (2018). Evaluation of Factors that Hinder Technology and Engineering Entrepreneurs in the Mining Sector. Paper presented at the 2018 Portland International Conference on Management of Engineering and Technology (PICMET).

Manda, M. I., & Backhouse, J. (2017). Digital transformation for inclusive growth in South Africa. Challenges and opportunities in the 4th industrial revolution. Paper presented at the 2nd African conference on information science and technology, Cape Town, South Africa.



Marellapudi, A., Hussen, S. A., Brown, D. N., Fletcher, M. R., Henkhaus, M. E., Jones, M. D., . . . Kalokhe, A. S. J. A. c. (2022). Understanding and addressing privacy and confidentiality .

