

DIGITAL ADOPTION AND BUSINESS PERFORMANCE AMONG SMALL AND MEDIUM ENTERPRISES IN SOUTH AFRICA: EVIDENCE FROM GAUTENG PROVINCE

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ABSTRACT

Small and Medium Enterprises (SMEs) play a critical role in economic growth, employment creation, and innovation in emerging economies. Despite their importance, many South African SMEs continue to experience challenges related to limited market access, operational inefficiencies, financial constraints, and inadequate digital capabilities. Digital technologies have increasingly been recognised as strategic resources that can enhance business competitiveness, improve customer engagement, and strengthen organisational performance. However, empirical evidence on the long-term impact of digital adoption within South African SMEs remains limited.

This study investigates the impact of digital adoption on business performance among SMEs in Gauteng Province, South Africa, over the period 2013–2022. Guided by the Technology Acceptance Model (TAM), the Resource-Based View (RBV), and the Diffusion of Innovation Theory, the study employed a mixed-methods research design that combined structured questionnaires with semi-structured interviews involving SME owners and managers.

Quantitative data were analysed using descriptive statistical techniques, while qualitative data were analysed through thematic analysis.

The findings indicate that digital adoption positively influences customer acquisition, market reach, and operational efficiency, with financial performance improving more gradually over time. Mobile-based technologies, particularly WhatsApp Business and social media platforms, emerged as the most widely adopted digital tools because of their affordability, accessibility, and ease of use. The study further identifies digital skills shortages, financial constraints, and inadequate digital infrastructure as the primary barriers limiting effective digital adoption. In addition, the COVID-19 pandemic significantly accelerated digital transformation, compelling many SMEs to adopt digital technologies to ensure business continuity and resilience.

The study contributes to the growing literature on digital transformation in emerging markets by providing longitudinal evidence from the South African SME sector. It also demonstrates that successful digital adoption extends beyond technology acquisition and depends on organisational capabilities, strategic integration, and supportive institutional environments. The findings offer practical implications for SME owners, policymakers, enterprise development agencies, and training institutions seeking to enhance SME competitiveness and sustainability through digital transformation.

KEYWORDS: Digital adoption; Small and Medium Enterprises (SMEs); Business performance; Digital transformation; Technology Acceptance Model; Resource-Based View; Diffusion of Innovation Theory; South Africa.

1. INTRODUCTION

Small and Medium Enterprises (SMEs) are widely recognised as fundamental drivers of economic growth, employment creation, innovation, and poverty reduction across both developed and developing economies. Globally, SMEs account for approximately 90% of businesses and more than 50% of total employment, making their sustainability essential to economic resilience and inclusive development (World Bank, 2021). In South Africa, SMEs contribute significantly to gross domestic product (GDP), entrepreneurship, and job creation, yet many continue to experience persistent challenges that constrain their growth and long-term competitiveness.

Among the major challenges facing South African SMEs are limited access to finance, inadequate managerial capabilities, poor infrastructure, restricted market access, and increasing competitive pressures. These challenges are particularly pronounced among township and community-based enterprises, where socio-economic inequalities and resource constraints often limit business development opportunities. In response to these challenges, digital technologies have emerged as an important mechanism through which SMEs can improve operational efficiency, strengthen customer relationships, expand market reach, and enhance overall business performance.

Digital adoption refers to the integration and effective use of digital technologies such as social media platforms, mobile communication applications, digital payment systems, cloud-based services, and e-commerce solutions within business operations. These technologies enable SMEs to reduce operational costs, improve communication with customers, streamline business processes, and access wider markets beyond traditional geographical boundaries. The rapid growth of

internet connectivity, smartphone penetration, and mobile technologies has created new opportunities for SMEs to participate more actively in the digital economy.

The importance of digital adoption became particularly evident during the COVID-19 pandemic, when many businesses were compelled to adopt digital technologies to maintain operations amid lockdowns and restrictions on physical interaction. SMEs that had already embraced digital platforms demonstrated greater resilience and adaptability, while businesses with limited digital capabilities often struggled to survive. Consequently, digital adoption has shifted from being a competitive advantage to becoming a strategic necessity for business continuity and long-term sustainability.

Although existing literature generally supports the positive relationship between digital technologies and business performance, much of the empirical evidence is derived from developed economies or large organisations. Comparatively fewer studies have examined digital adoption within the context of South African SMEs, particularly from a longitudinal perspective that captures the evolution of digital adoption over time. Furthermore, limited research integrates both quantitative evidence and practitioner experience to explain how digital technologies influence business performance in emerging-market environments.

This study addresses this gap by examining the impact of digital adoption on business performance among SMEs operating in Gauteng Province, South Africa, over the period 2013 to 2022. Drawing upon the Technology Acceptance Model (TAM), the Resource-Based View (RBV), and the Diffusion of Innovation Theory, the study investigates how digital adoption influences customer acquisition, market reach, operational efficiency, and revenue growth, while also identifying the barriers that affect successful digital transformation.

The study contributes to the literature in three important ways. First, it provides longitudinal evidence of digital adoption among South African SMEs across the periods before, during, and after the COVID-19 pandemic. Second, it integrates three complementary theoretical perspectives to provide a more comprehensive explanation of digital adoption and business performance. Finally, the study offers practical recommendations for SME owners, policymakers, enterprise development agencies, and training institutions seeking to accelerate digital transformation and improve the competitiveness of SMEs within emerging economies.

2.LITERATURE REVIEW

Small and Medium Enterprises (SMEs) have long been recognised as important contributors to economic growth, employment creation, innovation, and poverty reduction worldwide.

According to the World Bank (2021), SMEs account for approximately 90% of all businesses globally and contribute more than half of total employment. Within South Africa, SMEs play an equally significant role in stimulating entrepreneurship, promoting local economic development, and addressing unemployment. Despite this contribution, many South African SMEs continue to experience high failure rates due to financial constraints, limited managerial capacity, inadequate infrastructure, and restricted access to markets.

The increasing digitalisation of the global economy has transformed the way businesses operate, creating new opportunities for SMEs to improve competitiveness and organisational performance. Digital adoption refers to the integration and effective use of digital technologies within business operations to create value, improve efficiency, and enhance customer engagement (Vial, 2019). Unlike digitisation, which focuses on converting analogue information into digital formats, or digital transformation, which represents organisation-wide strategic change, digital adoption focuses on the practical implementation and utilisation of digital technologies in everyday business activities.

For SMEs, digital adoption commonly involves technologies such as social media platforms, mobile communication applications, cloud computing services, digital payment systems, e-commerce platforms, and customer relationship management tools. These technologies enable businesses to communicate more effectively with customers, reduce operational costs, increase productivity, and expand their market reach beyond geographical limitations (Bharadwaj et al., 2013). As digital technologies continue to become more affordable and accessible, they increasingly represent essential strategic resources for small businesses operating in competitive markets.

The relationship between digital adoption and business performance has received considerable attention within academic literature. Previous studies generally report a positive association between digital technology utilisation and organisational outcomes such as productivity, innovation, operational efficiency, customer satisfaction, and financial performance (Brynjolfsson & McAfee, 2014; OECD, 2020). Digital marketing platforms, particularly social media, have enabled SMEs to compete more effectively with larger organisations by providing relatively inexpensive channels for customer acquisition, brand awareness, and relationship management (Kaplan & Haenlein, 2010; Chaffey, 2015).

However, research also demonstrates that technology adoption alone does not automatically improve organisational performance. The benefits of digital technologies depend largely on how effectively they are integrated into business strategies and operational processes (Laudon & Laudon, 2018). Organisations that combine digital technologies with appropriate managerial capabilities, employee skills, and strategic planning are more likely to achieve sustainable competitive advantage than businesses that merely adopt technology without organisational integration.

Several theoretical perspectives have been developed to explain digital adoption and its influence on organisational performance. The Technology Acceptance Model (TAM) proposes that technology adoption is primarily influenced by perceived usefulness and perceived ease of use (Davis, 1989). SMEs are therefore more likely to adopt technologies that provide immediate business benefits while requiring minimal technical expertise. This helps explain the widespread adoption of accessible platforms such as WhatsApp Business and Facebook among small businesses.

The Resource-Based View (RBV) offers a complementary perspective by arguing that sustainable competitive advantage is achieved through valuable organisational resources and capabilities (Barney, 1991). From this viewpoint, digital technologies become strategic assets when they are effectively integrated into business processes and supported by organisational knowledge, skills, and experience. Consequently, the competitive advantage created through digital adoption depends less on the technology itself than on the firm's ability to utilise it strategically.

The Diffusion of Innovation Theory further explains how technological innovations spread across organisations over time (Rogers, 2003). According to this theory, businesses adopt new technologies at different rates depending on factors such as perceived advantage, compatibility with existing business practices, complexity, trialability, and observability. The theory is particularly relevant in explaining why digital adoption among SMEs occurs progressively rather than simultaneously, with some firms acting as innovators while others adopt technologies only after observing successful implementation by their peers.

Although substantial literature supports the positive relationship between digital adoption and business performance, significant knowledge gaps remain. Much of the existing research has focused on developed economies, where businesses operate within relatively mature digital ecosystems characterised by advanced infrastructure and high levels of digital literacy.

Comparatively fewer studies have examined digital adoption within emerging economies, particularly within South Africa, where infrastructural limitations, financial constraints, and unequal access to digital resources continue to influence technology adoption decisions.

Furthermore, existing research has largely relied on cross-sectional designs that examine digital adoption at a single point in time. Such approaches provide limited understanding of how digital adoption evolves as businesses mature or respond to changing environmental conditions. The COVID-19 pandemic further demonstrated that external disruptions can dramatically accelerate digital adoption, highlighting the importance of understanding adoption as a dynamic rather than static process.

Another limitation within existing literature is the limited integration of quantitative evidence with practitioner experience. While statistical studies provide valuable evidence regarding technology adoption, they often fail to capture the practical realities, behavioural challenges, and contextual factors influencing SMEs in emerging economies. Incorporating practitioner perspectives therefore offers a richer understanding of how digital technologies are adopted, implemented, and sustained within real business environments.

Accordingly, this study seeks to address these gaps by examining the relationship between digital adoption and business performance among SMEs operating in Gauteng Province, South Africa, between 2013 and 2022. By integrating quantitative findings, qualitative evidence, and practitioner insights within the theoretical perspectives of TAM, RBV, and the Diffusion of Innovation Theory, the study provides a comprehensive understanding of digital adoption within an emerging-market context. This integrated approach contributes to both academic literature and practical policy development by offering evidence-based recommendations to strengthen digital transformation among South African SMEs.

3.THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

This study is underpinned by three complementary theoretical perspectives: the Technology Acceptance Model (TAM), the Resource-Based View (RBV), and the Diffusion of Innovation Theory (DOI). Collectively, these theories provide a comprehensive framework for explaining how SMEs adopt digital technologies, how these technologies create organisational value, and how digital adoption evolves over time within emerging market contexts.

The Technology Acceptance Model (TAM), developed by Davis (1989), explains technology adoption through two primary determinants: perceived usefulness and perceived ease of use.

Perceived usefulness refers to the extent to which users believe that a technology will enhance their work performance, while perceived ease of use relates to the degree to which the technology is considered simple to learn and operate. Within SMEs, technologies such as WhatsApp Business, Facebook, Instagram, and digital payment platforms are frequently adopted because they offer immediate business benefits while requiring relatively low levels of technical expertise. TAM therefore provides an appropriate theoretical lens for understanding why certain digital technologies are adopted more readily than others.

However, technology adoption alone does not necessarily translate into improved organisational performance. The Resource-Based View (RBV), introduced by Barney (1991), argues that sustainable competitive advantage results from valuable organisational resources and capabilities that are difficult for competitors to imitate. From this perspective, digital technologies should not be viewed merely as operational tools but as strategic organisational resources. Their contribution to business performance depends largely on how effectively they are integrated into business processes and supported by managerial capabilities, employee competencies, and strategic planning. Consequently, SMEs that successfully embed digital technologies within their operational and strategic activities are more likely to experience improvements in customer engagement, operational efficiency, market expansion, and financial performance.

The Diffusion of Innovation Theory (DOI), proposed by Rogers (2003), complements TAM and RBV by explaining how innovations spread through organisations and societies over time. According to the theory, adoption is influenced by five innovation characteristics: relative advantage, compatibility, complexity, trialability, and observability. SMEs differ considerably in their willingness and readiness to adopt digital technologies, resulting in varying adoption patterns ranging from innovators and early adopters to late adopters and laggards. Within the South African context, the diffusion process has been influenced not only by technological developments but also by environmental factors such as internet accessibility, digital literacy, government support programmes, and the COVID-19 pandemic, which significantly accelerated digital adoption across the SME sector.

The integration of these three theoretical perspectives provides a holistic explanation of digital adoption within SMEs. TAM explains the behavioural factors influencing technology acceptance, RBV explains how digital capabilities contribute to competitive advantage and business performance, while DOI explains the temporal and contextual processes through which adoption occurs. Together, these theories recognise that successful digital adoption requires more than technological availability; it also depends on organisational readiness, strategic capability, environmental support, and continuous learning.

Drawing on these theoretical perspectives and existing empirical literature, this study proposes that digital adoption positively influences business performance among SMEs. More specifically, businesses that effectively adopt and integrate digital technologies are expected to experience improvements in customer acquisition, market reach, operational efficiency, and revenue growth. Conversely, barriers such as inadequate digital skills, financial constraints, and limited digital infrastructure are expected to moderate the effectiveness of digital adoption.

Accordingly, the study proposes the following hypotheses:

H1: Digital adoption has a significant positive effect on SME business performance.

H2: The adoption of accessible digital technologies positively influences customer acquisition and market reach.

H3: Digital capabilities positively influence operational efficiency within SMEs.

H4: Digital skills, financial resources, and digital infrastructure significantly moderate the relationship between digital adoption and business performance.

These hypotheses guided the empirical investigation and informed the development of the conceptual framework presented in Figure 1.

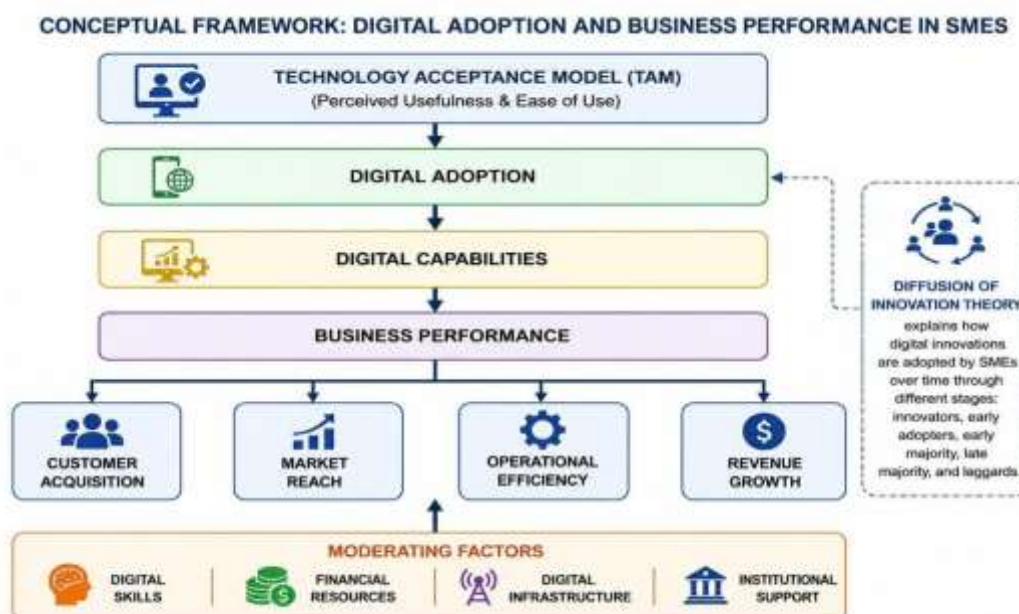


Figure 1. Proposed Conceptual Framework

4. RESEARCH METHODOLOGY

Research Design

This study employed a mixed-methods research design to investigate the relationship between digital adoption and business performance among Small and Medium Enterprises (SMEs) in South Africa. The mixed-methods approach was selected because it enables the integration of quantitative and qualitative data, thereby providing a more comprehensive understanding of the research problem than either method could achieve independently (Creswell & Creswell, 2018). Quantitative data provided measurable evidence of digital adoption and business performance, while qualitative data offered contextual insights into the experiences, perceptions, and challenges encountered by SME owners and managers.

Research Philosophy and Approach

The study was guided by the pragmatic research philosophy, which supports the use of multiple methods to address complex research questions and generate practical solutions. Pragmatism recognises that no single methodological approach is sufficient to explain complex organisational phenomena such as digital adoption. Consequently, both deductive and inductive reasoning were employed. The deductive approach was applied in testing the theoretical relationships proposed by the Technology Acceptance Model (TAM), the Resource-Based View (RBV), and the Diffusion of Innovation Theory (DOI), while the inductive approach facilitated the identification of emerging themes from participants' experiences.

Population and Sampling

The target population consisted of SME owners and managers operating within Gauteng Province, South Africa. The study focused on businesses from sectors including retail, construction, and service industries that had some level of exposure to digital technologies and enterprise development initiatives.

A purposive sampling technique was adopted to select participants with relevant knowledge and practical experience of digital adoption. Purposive sampling was considered appropriate because it enabled the researcher to obtain information-rich cases capable of providing meaningful insights into the research problem (Saunders et al., 2019).

The final sample comprised 50 SMEs, from which quantitative survey data were collected. Semi-structured interviews were subsequently conducted with a smaller group of participants selected from the survey respondents to obtain deeper qualitative insights.

Data Collection

Primary data were collected using two complementary research instruments.

The first instrument consisted of a structured questionnaire designed to gather quantitative information relating to digital adoption, business performance, customer engagement, operational efficiency, revenue growth, market reach, and challenges associated with digital technology utilisation. The questionnaire primarily employed closed-ended questions and Likert-scale responses to facilitate statistical analysis.

The second instrument comprised semi-structured interviews conducted with selected SME owners and managers. These interviews explored participants' experiences with digital technologies, perceived benefits, implementation challenges, the influence of the COVID-19 pandemic, and future digital development needs. The interviews allowed respondents to elaborate on issues that could not be fully captured through structured questionnaires.

Data Analysis

Quantitative data were analysed using descriptive statistical techniques, including frequencies, percentages, and comparative analysis. These methods were appropriate for summarising adoption patterns and identifying relationships between digital adoption and selected business performance indicators.

Qualitative data were analysed using thematic analysis following the approach proposed by Braun and Clarke (2006). Interview transcripts were coded systematically to identify recurring concepts, patterns, and themes. The resulting themes were then compared with the quantitative findings to strengthen interpretation through methodological triangulation.

The integration of quantitative and qualitative findings enabled the study to provide both statistical evidence and contextual explanations regarding the influence of digital adoption on SME performance.

Validity, Reliability and Trustworthiness

Several measures were implemented to ensure the quality of the research. Content validity was enhanced by aligning the research instruments with the study objectives and the underlying theoretical framework. Reliability was promoted through the use of standardised questionnaires administered consistently across all participants.

For the qualitative component, credibility was strengthened through triangulation of multiple data sources, while dependability was supported by maintaining consistent interview procedures and systematic coding of qualitative data. The integration of quantitative and qualitative evidence further enhanced the overall trustworthiness of the findings.

Ethical Considerations

The study adhered to accepted ethical principles governing academic research. Participation was voluntary, and informed consent was obtained from all respondents prior to data collection.

Participants were informed of the purpose of the study, their right to withdraw at any stage, and the intended use of the research findings.

Confidentiality and anonymity were maintained throughout the research process by ensuring that neither participants nor their businesses were identified in the reporting of results. All information collected was used solely for academic purposes and managed in accordance with the ethical principles of responsible research and the Protection of Personal Information Act (POPIA) applicable in South Africa.

Table 1. Summary of Research Methodology

Research Component	Description
Research Design	Mixed-methods
Research Philosophy	Pragmatism
Research Approach	Deductive and Inductive
Population	SME Owners and Managers in Gauteng Province
Sampling Technique	Purposive Sampling
Sample Size	50 SMEs
Quantitative Instrument	Structured Questionnaire
Qualitative Instrument	Semi-Structured Interviews
Quantitative Analysis	Descriptive Statistics
Qualitative Analysis	Thematic Analysis
Ethical Compliance	Informed Consent, Confidentiality, POPIA Compliance

5.RESULTS

5.1Overview

This section presents the findings of the study on digital adoption and business performance among Small and Medium Enterprises (SMEs) in Gauteng Province, South Africa. The findings are presented in line with the study objectives and integrate quantitative survey results with qualitative evidence obtained through semi-structured interviews. The quantitative findings are presented using descriptive statistics, while qualitative findings are used to provide contextual interpretation of the statistical results.

5.2Digital Adoption Among SMEs

The first objective of the study was to determine the extent of digital adoption among SMEs. The results indicate that the majority of participating businesses had adopted at least one digital technology in their operations. However, adoption varied considerably depending on the complexity, affordability, and perceived usefulness of the technology.

Table 2. Digital Technologies Adopted by SMEs

Digital Technology	Percentage (%)
WhatsApp Business	85
Social Media Platforms	78
Digital Payment Systems	62
Accounting Software	41

E-commerce Platforms	34
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As shown in Table 2, WhatsApp Business emerged as the most widely adopted digital technology (85%), followed by social media platforms (78%). These technologies are relatively affordable, easy to implement, and require minimal technical expertise. Digital payment systems were adopted by 62% of respondents, while accounting software (41%) and e-commerce platforms (34%) recorded substantially lower adoption rates.

These findings suggest that SMEs prioritise digital technologies that deliver immediate business value with relatively low implementation costs. The results also support the Technology Acceptance Model (TAM), which proposes that technologies perceived as useful and easy to use are more likely to be adopted.

5.3 Impact of Digital Adoption on Business Performance

The second objective examined whether digital adoption influenced business performance. Respondents were asked to indicate whether digital technologies had contributed to improvements across selected business performance indicators.

Table 3. Reported Improvements in Business Performance

Performance Indicator	SMEs Reporting Improvement (%)
Customer Acquisition	72
Market Reach	69
Operational Efficiency	65
Revenue Growth	48

The findings indicate that customer acquisition (72%) and market reach (69%) were the areas most positively influenced by digital adoption. Operational efficiency also improved considerably, with 65% of SMEs reporting positive outcomes. Although nearly half of the respondents (48%) reported revenue growth, this percentage was lower than for the other performance indicators.

These findings suggest that digital adoption initially strengthens customer engagement and organisational efficiency before translating into measurable financial gains. This supports the Resource-Based View (RBV), which argues that organisational capabilities created through technology contribute progressively to improved performance rather than generating immediate financial returns.

5.4 Evolution of Digital Adoption (2013–2022)

The longitudinal analysis revealed three distinct phases of digital adoption among participating SMEs.

Table 4. Phases of Digital Adoption

Period	Characteristics
2013–2016	Limited adoption of basic mobile communication technologies.
2017–2019	Increased use of social media for customer engagement and marketing.
2020–2022	Rapid adoption of digital platforms driven by COVID-19 disruptions.

The results demonstrate that digital adoption evolved progressively over the ten-year period. During the early years, most SMEs relied primarily on traditional business practices, with limited use of digital technologies. Between 2017 and 2019, increased smartphone penetration and internet accessibility encouraged broader adoption of social media and digital communication tools.

The most significant acceleration occurred during the COVID-19 pandemic, when businesses increasingly adopted digital platforms to maintain customer relationships, facilitate online transactions, and ensure business continuity. These findings support the Diffusion of Innovation Theory by illustrating how external environmental pressures can significantly accelerate technology adoption.

5.5 Qualitative Findings

Thematic analysis of interview data identified five major themes that explain how digital adoption influenced SME performance.

Table 5. Major Themes Identified from Interviews

Theme	Summary
Enhanced Customer Engagement	Faster communication and stronger customer relationships.
Increased Business Visibility	Improved online presence and wider market exposure.
Cost-Effective Marketing	Affordable promotion through social media platforms.
Improved Operational Efficiency	Better coordination, communication, and transaction management.
Theme	Summary
Barriers to Digital Adoption	Digital skills shortages, financial constraints, and poor internet connectivity.

Participants consistently reported that digital technologies strengthened communication with customers, expanded business visibility, and reduced marketing costs. Many respondents highlighted WhatsApp Business and Facebook as essential tools for customer engagement because they enabled immediate communication and simplified order management.

At the same time, participants emphasised several barriers limiting digital adoption. The most frequently reported challenges included inadequate digital skills, high internet costs, limited financial resources, and unreliable digital infrastructure. These constraints affected both the extent of technology adoption and the ability of SMEs to maximise the benefits of digital technologies.

5.6 Summary of Results

The findings demonstrate that digital adoption positively influences SME performance across several dimensions. Technologies that are affordable, user-friendly, and easily accessible were adopted most frequently, resulting in improved customer acquisition, expanded market reach, and greater operational efficiency. However, financial performance improved more gradually, suggesting that digital adoption creates value through the progressive development of organisational capabilities rather than through immediate revenue generation.

The findings also reveal that successful digital transformation depends not only on technology adoption but also on digital skills, financial capacity, organisational readiness, and enabling infrastructure. These factors collectively determine the extent to which SMEs can translate digital investments into sustainable business performance.

6. DISCUSSION

6.1 Digital Adoption and Business Performance

The findings of this study demonstrate that digital adoption has a positive and statistically meaningful influence on the performance of Small and Medium Enterprises (SMEs) in South Africa. Businesses that adopted digital technologies reported improvements in customer acquisition, market reach, operational efficiency, and, to a lesser extent, revenue growth. These findings reinforce previous studies that identify digital technologies as important enablers of organisational competitiveness and business sustainability (OECD, 2020; McKinsey & Company, 2021).

While customer acquisition and market reach recorded the highest levels of improvement, revenue growth was comparatively lower. This suggests that the benefits of digital adoption are realised progressively rather than immediately. Digital technologies first strengthen customer relationships, increase market visibility, and improve operational processes before these improvements translate into measurable financial performance. This observation extends previous research by demonstrating that digital adoption should be viewed as a long-term strategic investment rather than a short-term solution for improving profitability.

These findings also support Bharadwaj et al. (2013), who argue that digital technologies create organisational value by transforming business capabilities rather than simply automating existing processes. SMEs that strategically integrated digital tools into their operations experienced greater improvements than those that adopted technologies on an ad hoc basis.

6.2 Technology Acceptance and SME Digital Adoption

The high adoption rates of WhatsApp Business and social media platforms provide strong support for the Technology Acceptance Model (TAM). According to Davis (1989), technologies are more likely to be adopted when users perceive

them as useful and easy to use. The findings of this study demonstrate that SMEs favour digital solutions that require limited financial investment, minimal technical expertise, and provide immediate operational benefits. However, this study also suggests that TAM alone is insufficient to explain digital adoption within emerging economies. Although many participants recognised the usefulness of more advanced technologies such as accounting software and e-commerce platforms, adoption remained relatively low. This indicates that perceived usefulness does not automatically result in adoption when businesses face constraints such as inadequate digital skills, limited financial resources, and poor digital infrastructure.

Consequently, this study extends TAM by demonstrating that contextual variables significantly influence technology adoption among SMEs. In emerging-market environments, successful adoption depends not only on technology characteristics but also on organisational readiness and the availability of enabling resources.

6.3 Digital Capabilities as Strategic Resources

The findings strongly support the Resource-Based View (RBV), which argues that sustainable competitive advantage is achieved through the effective utilisation of valuable organisational resources (Barney, 1991). The study demonstrates that digital technologies become strategic assets only when they are integrated into organisational processes and supported by appropriate managerial capabilities.

SMEs that actively incorporated digital tools into customer relationship management, communication, marketing, and operational activities reported greater improvements in performance than businesses using technology only occasionally. This finding suggests that digital technologies themselves are not sources of competitive advantage; rather, competitive advantage emerges from the capabilities organisations develop through effective technology utilisation.

The findings therefore contribute to RBV by illustrating that digital capabilities represent dynamic organisational resources that enhance adaptability, innovation, and long-term competitiveness within resource-constrained SME environments.

6.4 Digital Adoption as an Evolutionary Process

The longitudinal nature of this study provides evidence that digital adoption among SMEs evolves through identifiable stages rather than occurring as a single event. The progression from limited mobile communication during the early years to widespread digital engagement during the COVID-19 pandemic reflects the principles of the Diffusion of Innovation Theory (Rogers, 2003).

The findings indicate that external environmental events significantly influence the rate of digital adoption. The COVID-19 pandemic accelerated technology adoption across all categories of SMEs, including businesses that had previously been reluctant to adopt digital solutions. This suggests that crisis situations may compress the traditional diffusion process by forcing businesses to adopt innovations much faster than predicted under normal market conditions.

The study therefore extends the Diffusion of Innovation Theory by demonstrating that environmental disruptions can fundamentally reshape technology adoption trajectories within emerging economies.

6.5 Barriers to Digital Adoption

Although digital adoption generated positive business outcomes, several barriers limited its effectiveness. Digital skills shortages, financial constraints, unreliable internet connectivity, and inadequate digital infrastructure emerged as the most significant obstacles reported by participants. These findings are consistent with previous studies conducted by UNCTAD (2019) and the World Bank (2021), which identify capability development and infrastructure as fundamental prerequisites for successful digital transformation.

Importantly, this study found that these barriers do not operate independently. Instead, they reinforce one another. Limited financial resources reduce opportunities for digital training, insufficient digital skills hinder effective technology utilisation, and poor infrastructure further constrains adoption. This interconnected relationship suggests that interventions aimed at promoting digital adoption should address multiple barriers simultaneously rather than focusing on isolated challenges.

6.6 Contribution to Knowledge

This study makes several important contributions to the existing body of knowledge.

First, it provides longitudinal evidence of digital adoption among South African SMEs over a ten-year period (2013–2022), offering insights into how technology adoption evolved before, during, and after the COVID-19 pandemic. Few previous studies have examined digital adoption from this extended temporal perspective.

Second, the study demonstrates the value of integrating the Technology Acceptance Model, the Resource-Based View, and the Diffusion of Innovation Theory into a single analytical framework. Rather than viewing these theories as competing explanations, the research shows that they provide complementary perspectives for understanding technology adoption, organisational capability development, and business performance.

Third, the study contributes context-specific evidence from South Africa, addressing an important gap in the literature, which has traditionally focused on developed economies. The findings highlight how socio-economic conditions, digital infrastructure, institutional support, and organisational capabilities collectively influence digital transformation within emerging-market SMEs.

Finally, the study bridges academic theory and professional practice by combining empirical evidence with practitioner experience. This integrated perspective provides practical insights for policymakers, enterprise development agencies,

business support organisations, and SME owners seeking to strengthen digital transformation strategies and improve long-term business performance.

7.DISCUSSION

7.1 Digital Adoption and Business Performance

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These findings also support Bharadwaj et al. (2013), who argue that digital technologies create organisational value by transforming business capabilities rather than simply automating existing processes. SMEs that strategically integrated digital tools into their operations experienced greater improvements than those that adopted technologies on an ad hoc basis.

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However, this study also suggests that TAM alone is insufficient to explain digital adoption within emerging economies. Although many participants recognised the usefulness of more advanced technologies such as accounting software and e-commerce platforms, adoption remained relatively low. This indicates that perceived usefulness does not automatically result in adoption when businesses face constraints such as inadequate digital skills, limited financial resources, and poor digital infrastructure.

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SMEs that actively incorporated digital tools into customer relationship management, communication, marketing, and operational activities reported greater improvements in performance than businesses using technology only occasionally. This finding suggests that digital technologies themselves are not sources of competitive advantage; rather, competitive advantage emerges from the capabilities organisations develop through effective technology utilisation.

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(2019) and the World Bank (2021), which identify capability development and infrastructure as fundamental prerequisites for successful digital transformation.

Importantly, this study found that these barriers do not operate independently. Instead, they reinforce one another. Limited financial resources reduce opportunities for digital training, insufficient digital skills hinder effective technology utilisation, and poor infrastructure further constrains adoption. This interconnected relationship suggests that interventions aimed at promoting digital adoption should address multiple barriers simultaneously rather than focusing on isolated challenges.

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First, it provides longitudinal evidence of digital adoption among South African SMEs over a ten-year period (2013–2022), offering insights into how technology adoption evolved before, during, and after the COVID-19 pandemic. Few previous studies have examined digital adoption from this extended temporal perspective.

Second, the study demonstrates the value of integrating the Technology Acceptance Model, the Resource-Based View, and the Diffusion of Innovation Theory into a single analytical framework. Rather than viewing these theories as competing explanations, the research shows that they provide complementary perspectives for understanding technology adoption, organisational capability development, and business performance.

Third, the study contributes context-specific evidence from South Africa, addressing an important gap in the literature, which has traditionally focused on developed economies. The findings highlight how socio-economic conditions, digital infrastructure, institutional support, and organisational capabilities collectively influence digital transformation within emerging-market SMEs.

The study bridges academic theory and professional practice by combining empirical evidence with practitioner experience. This integrated perspective provides practical insights for policymakers, enterprise development agencies, business support organisations, and SME owners seeking to strengthen digital transformation strategies and improve long-term business performance.

8. Declarations

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The author received no financial support for the research, authorship, and/or publication of this article. The study was conducted independently as part of the requirements for the Master of Business Administration (MBA) degree.

Conflict of Interest

The author declares that there are no financial, professional, or personal conflicts of interest that could have influenced the research, analysis, interpretation of the findings, or the preparation of this manuscript.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request. The data are not publicly available due to ethical considerations, including the protection of participant confidentiality and compliance with applicable data protection legislation.

Ethical Considerations

This study was conducted in accordance with accepted principles of ethical research involving human participants. Participation in the study was voluntary, and informed consent was obtained from all participants prior to data collection. Participants were informed of the purpose of the study, their right to withdraw at any stage without prejudice, and the intended use of the research findings.

Confidentiality and anonymity were maintained throughout the research process. Personal and organisational information was treated with strict confidence and used solely for academic research purposes. The collection, storage, processing, and reporting of data complied with the ethical standards for academic research and the provisions of the Protection of Personal Information Act (POPIA), Act No. 4 of 2013, of the Republic of South Africa.

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