



Publisher

<http://jssidoi.org/esc/home>

NAVIGATING TECHNOLOGY ADOPTION IN SMALL BUSINESSES OPERATING IN A SOUTH AFRICAN TOWNSHIP

Bramwell Kundishora Gavaza ^{1*}, Obrain Tinashe Murire ²

^{1*}Management Department, Faculty of Management & Public Administration Sciences, Walter Sisulu University, Private Bag X3182, Butterworth, Eastern Cape 4960, South Africa

²Faculty of Engineering, Built Environment & Information Technology, Walter Sisulu University, Buffalo City Campus, PO Box 1421, East London, 5201, South Africa

E-mails: ^{1*}bgavaza@wsu.ac.za (Corresponding author); ²omurire@wsu.ac.za

Received 15 September 2025; accepted 20 January 2026; published 30 March 2026

Abstract. The integration of Information and Communications Technology has become essential for business operations globally, including small businesses in South African townships. The rapid technological advancements and the impact of the COVID-19 pandemic have accelerated the need for digital integration. This study employs a qualitative methodology, analysing thirty academic publications post-COVID-19, to explore the use of technology in township small businesses. While technology adoption has been linked to business success, its utilisation in township businesses remains partial due to various challenges such as digital illiteracy, infrastructural constraints, and a lack of clear policies. The study highlights the benefits of technology integration and calls for future research to identify optimal technological solutions for small businesses in townships. It also emphasises the need for targeted support, including policy frameworks, training programmes, and infrastructural improvements, to enhance digital adoption in these environments.

Keywords: small businesses, technology adoption, township economy

Reference to this paper should be made as follows: Gavaza, B. K., Murire, O. T. 2026. Navigating technology adoption in small businesses operating in a South African township. *Entrepreneurship and Sustainability Issues*, 13(3), 299-311. <http://doi.org/10.9770/m2848565369>

JEL Classifications: O31, O33

1. Introduction

The emergence of Information and Communications Technology (ICT) is now becoming a core operation in businesses in South Africa and worldwide. From micro-enterprises to multinational corporations, the integration of ICT has transformed business processes, reshaped customer engagement, and enabled access to new markets (Slinger et al., 2024; Gavaza et al., 2025b). This digital transformation has reached even the most underserved areas and localities in South Africa, including townships, where the establishment of small businesses is a significant segment of the informal economy (Marolt et al., 2025). The COVID-19 pandemic accelerated this trend by forcing many businesses, regardless of size, to enter the digital space to remain operational (Cromhout & Duffett, 2022). Small businesses situated in a township, even those that were not so inclined to use digital tools before, were forced to be involved in technology, but at different levels and with varying degrees of sophistication.

The business domain is now more complex regarding innovation, creativity, production, transactions, and communication channels between the business and its surroundings (Tshabalala & Beharry-Ramraj, 2021). The COVID-19 pandemic era almost compelled every business to adopt technology, including small businesses in

townships (Dos Santos & Duffett, 2021). Due to the introduction of WhatsApp, Facebook Marketplace, and mobile point-of-sale systems, traditional methods can no longer effectively help small businesses in townships to market their items, conduct transactions, and foster customer loyalty. The use of technology, particularly the Internet, has eliminated geographical boundaries and historical barriers between township entrepreneurial businesses and the customer community. Engaging the customer community is essential, as customer feedback presents an opportunity to address any negative instances (Amankwah-amuah et al., 2021). This helps establish customer relationships that lead to customer retention, especially when customers perceive they are part of the business (Cromhout & Duffett, 2022). Thus, appropriate technologies are essential to meeting customers' needs (Bomani et al., 2024).

Despite these advances, the township sector remains a difficult terrain to map (Township Tech Sector Intelligence Report, 2021). This is especially true because townships have a wide variety of business types, operations are usually unstructured, and the infrastructure is not evenly distributed, making empirical research in these environments quite challenging (Kayser et al., 2023). Thus, entrepreneurs operating within township setups do not always work within more established regulatory and financial frameworks, limiting their exposure and the ability to receive more formalised forms of assistance (Bingwa, 2024). Furthermore, there is no consistency in the adoption rate of technology by the township businesses, and it is therefore less likely to form general trends and best practices (Shibiti et al., 2023). The adoption of digital tools is complete in some businesses and negligible to nil in others due to cost, digital illiteracy, and infrastructural constraints (Dos Santos & Duffett, 2021; Muchineripi, 2025). As such, researchers face significant challenges when gathering information and arriving at uniform findings regarding digital uptake in townships.

However, following the COVID-19 pandemic, a trend has emerged in township entrepreneurship. The contribution of these small businesses to the township's economy is becoming increasingly visible (Gavaza, 2025; Shibiti et al., 2023). There is an increase in literature on township economies, and the trend of digital entrepreneurship and adoption of technology is getting considerable attention (Tau et al., 2024). Nevertheless, most of the published literature focuses on either general entrepreneurship or urban small businesses, whereas little is known about the peculiarities of technological utilisation in township environments (Akinsola & Munepapa, 2021). Systematic knowledge regarding the level to which township businesses adopted technology, the problems they encounter, and which strategies would contribute to deeper digitalisation remains limited.

The latest surveys indicate that, on the one hand, 72 per cent of South African urban SMEs have implemented at least one digital tool. At the same time, adoption rates among township small businesses are estimated to be less than 40%, revealing a stark contrast (Small Enterprise Development Agency, 2023). Similar results have been observed in other African countries, with Kenya having 32 per cent of small businesses still failing to fully utilise digital technology, despite the high penetration of technology in Africa (Muli & Eising, 2020). This paper aims to fill that gap by implementing a cumulative literature review study on the topic of technology in township small businesses in South Africa, particularly in the context of the COVID-19 pandemic. It examines in particular the technology adopted, perceived usefulness, ease of use, and structural and behavioural barriers to adoption. The Technology Acceptance Model forms the basis of the study, offering a theoretical perspective through which the results can be interpreted, explaining how entrepreneurs perceive and approach the use of technology. Therefore, this study aims to investigate the use and acceptance of technology in township small businesses in South Africa. Furthermore, to provide strategies to assist technology adoption in township small businesses.

2. Literature Review

Technology Acceptance and Adoption in Township Economies

The concept of technology adoption is extensively discussed in business and information systems-oriented literature, and several models have been developed to substantiate the behavioural and contextual factors that influence adoption (Madzvamuse et al., 2024). The Technology Acceptance Model (TAM) by Davis (1993) is one of the most established frameworks and remains a key instrument in understanding the motivation to accept or reject digital innovations among users. TAM posits that two key perceptions, perceived usefulness and perceived ease of use, shape an individual's behavioural intention to use a technology (Davis, 1993). These

constructs are especially applicable in the township's small businesses. To that end, entrepreneurs frequently evaluate the potential of the technology to enhance customer engagement, boost sales, or facilitate business processes (Slinger et al., 2024). Accordingly, mobile point-of-sale (POS) devices, e-wallets, and social media platforms would be increasingly adopted if they are perceived as offering immediate value to companies.

Equally important is the ease of use, especially given that many township entrepreneurs operate without formal ICT training or access to digital literacy resources (Almawash & Saleh, 2024). Small owners may be deterred by the presence of complex interfaces or multi-layered systems, lacking the necessary technical knowledge or confidence to utilise them (Mukuni, 2023). This is why platforms with even an easier user experience, such as WhatsApp Business and Facebook Marketplace, are widely used in townships, which require minimal onboarding (Donga & Chimucheka, 2025). They have become popular not just because they are simple, but also because they align with current customer behaviour, such as mobile messaging and social media browsing, among others.

However, the literature also identifies perceived risk and trust as additional factors influencing adoption (Cromhout & Duffett, 2022; Dos Santos & Duffett, 2021). The most frequent reason given by township entrepreneurs for their choices to opt in or opt out of mobile banking or electronic payment platforms is the concern of fraud, identity theft, or technical difficulties (Bhatt, 2016). Consumer confidence in service providers, especially in geographical locations where financial fraudsters and unsupportive after-sales services are prevalent, significantly influences adoption choices (Tshabalala & Beharry-Ramraj, 2021). Without ensuring that their data is safe and support can be offered in case of failure, entrepreneurs will not adopt new technology, despite the perceived high benefits of using it.

Technology penetration in the township environment is, in practice, neither linear nor comprehensive (Asongu, 2021). Instead, it is more likely to be in the form of a hybrid, where the digital toolbox objects are deployed alongside established practices. For example, a business owner can sell products through Facebook or WhatsApp; however, they can still manage inventory and customer profiles manually (Nhuvira & Dorasamy, 2021). This is a partial embrace of creativity and constraints; businesses would do what they can with the provided infrastructural constraints, cost constraints, and support gaps. Despite the level of interest in technology, structural issues often hinder the full integration process, as they are beyond the control of individual entrepreneurs (Ligthelm, 2016).

Furthermore, the broader policy environment has fallen short of adequately meeting the demands for digital inclusion in township economies (Marolt et al., 2025). Nationally designed initiatives to increase connectivity, such as SA Connect and the Digital Migration Strategy, are often misplaced because they frequently fail to incorporate implementation processes directly applicable to informal micro-enterprises (Nhuvira & Dorasamy, 2021). Therefore, there is a fragmentation of technology adoption that is unbalanced and prone to failure under the same circumstances unless such initiatives are facilitated by coordinated infrastructure, capacity building, and institutional support (dos Santos & Duffett, 2021).

Overview of Township Small Businesses in South Africa

Small businesses in the townships are a pillar of the informal and formal economy of South Africa. The variety of these businesses includes spaza shops, hairdressing salons, car washes, food sellers, informal manufacturers, and repair services (Ligthelm, 2008). Although they are not homogeneous, they face similar challenges, such as limited access to formal financial systems, inadequate security in business premises, and low customer demand (Otieno & Wawire, 2023). Most of them are not registered and cannot access the government support, credit, and training programmes. However, they remain a source of income for millions of people, especially in societies where unemployment is rampant. The legacy of apartheid forced most townships outside the economic centres, causing logistical issues with transporting goods, reaching customers, or involving them in wider supply chains (Bingwa, 2024). The infrastructure of townships, including roads, electricity, broadband, and even public safety, can be underdeveloped or poorly maintained (Kayser et al., 2023). This leaves entrepreneurs with no option but to rely solely on local networks to source and sell, and create informal support networks, which act as an alternative to formal market access.

Regardless of the structural obstacles to growth, township economies are gradually gaining recognition for their resilience and innovation. A flexible pricing structure, word-of-mouth marketing, and effective community relations enable small businesses to respond promptly to changing events (Chingapi & Steyn, 2022). The Township and Rural Economy Revitalisation Strategy recognises the crucial role of township businesses in fostering inclusive economic growth (Department of Small Business Development, 2023). Nonetheless, in practice, it is implemented slowly and lacks sufficient resources (Muchineripi et al., 2025). Most programs do not consider the lived realities of informal entrepreneurs, particularly in terms of digital inclusion and access to modern technology (Small Town Regeneration Strategy and Implementation Plan, 2021). Small businesses in townships play a crucial role due to their social value, particularly to economically and socially disadvantaged groups. Therefore, township small businesses are not only a source of income but also a means of skill fine-tuning, social capital building, and contributing to the economy (Kayser et al., 2023). Although some township businesses have taken steps to formalise their activities, most, if not all, have not registered their businesses, and they operate on the fringes of the formal economy (Slinger et al., 2024). As a result, most township small businesses are exposed to economic shocks, regulatory tightening, crime, and natural disasters, which negatively impact the informal sector (Mbatha et al., 2024). Given the complexities of the township environment, academic researchers increasingly agree that township small businesses require targeted support that reflects their unique operating conditions (Dos Santos & Duffett, 2021; Mbatha et al., 2024).

Technology Use in Township Small Businesses

Digital technology has created new opportunities for township entrepreneurs, especially in areas such as marketing, transactions, and customer services (Ojong et al., 2021). Social networks, such as WhatsApp, Facebook, and Instagram, are widely used to market goods and services, interact with customers, and take informal orders (Dos Santos & Duffett, 2021). These platforms are attractive because they are simple to operate and relatively inexpensive to use, as small business owners and customers are familiar with them, making them particularly appealing in low-income township settings (Tau et al., 2024). Furthermore, social networks are also utilised to maintain relationships with customers, provide information about products, and facilitate delivery requests, thereby increasing customer loyalty and convenience (Abdul-Halim et al., 2022).

It is worth noting that certain township businesses have implemented mobile point-of-sale (POS) systems, such as Yoco and SnapScan, which enable them to accept card payments and reduce their reliance on cash (Tshabalala & Beharry-Ramraj, 2021). These solutions are particularly useful in addressing customer preference changes in a post-COVID-19 pandemic economy, where contactless payments are becoming increasingly accepted. However, they are only restricted to small businesses in particular townships, such as retail and food services, and do not often include businesses in construction-related jobs, repair, or casual manufacturing (Chingapi & Steyn, 2022).

The adoption of digital technology in township small businesses is essential (Madzvamuse et al., 2024). Many small business owners adopt the use of digital tools as a stopgap measure, primarily as an instrument of advertisement or communication (Slinger et al., 2024). Paul et al. (2024) argue that few township small business entrepreneurs utilise digital technology for bookkeeping and inventory management, or reach out to suppliers, thereby missing a significant opportunity to become more efficient and scalable. This stems from multiple interlinked barriers, including limited access to reliable internet, frequent power outages, unaffordable data, and the high cost of smart devices (Dos Santos & Duffett, 2021). In addition, Muchineripi et al. (2025) suggest that the issues of language, the lack of customer services, and the fear of being a victim of online fraud exacerbate the problem.

The Small Town Regeneration Strategy and Implementation Plan (2021) highlighted the need to train and support township small business owners in utilising digital technology. The majority of township entrepreneurs end up learning how to use digital tools informally, either through trial and error, word of mouth, or community-based sharing (Maichum et al., 2016). This indicates flexibility, which also makes the knowledge inconsistent and less confident in handling higher-scaled digital tools (Bhoola & Chetty, 2022). Additionally, people have a limited understanding of government and NGO activities related to digital empowerment (Almawash & Saleh, 2024). In cases where such programs do exist, they tend to focus on formal small businesses, or the program becomes invisible in township environments (Hongoro et al., 2022). Thus, one can conclude that the digital

revolution has established itself in the formal sectors but remains to be systematically and large-scale in the township context (Gavaza et al., 2025a; Tau et al., 2024). Digital tools are, therefore, regarded as peripheral assets rather than core business assets (Joseph & Sengul, 2024). This highlights the need for integrated efforts to pursue a combination of infrastructure, affordability, skills, and ongoing support in township settings.

Identified Gaps and Study Rationale

Although the literature indicates a common consensus on the benefits of adopting digital technology amongst township small businesses, several key gaps exist therein. The empirical research on township informal businesses is limited compared to formal and urban small businesses. This urban-centred emphasis does not accurately reflect the realities of township economies, particularly in terms of their structural and socio-economic aspects. Furthermore, critical case studies documenting both successes and failures, as well as partial successes, of digital tools are under-reported, which is essential for understanding the entire range of dynamics of adoption (Cromhout & Duffett, 2022). Additionally, the lack of proper analysis of the interactions between policy frameworks, socio-cultural influences, and constraints under which township entrepreneurs are forced to operate is a common issue in the existing literature (Dos Santos & Duffett, 2021). This absence of a subtle, multi-layered analysis undermines the possibility of developing effective intervention programs specifically for the township environment settings.

In addition, integrated models between the micro-level perceptions of entrepreneurship, such as motivations, attitudes, and informal learning, and the macro-level of policy and institutional frameworks that enable the environment are significantly absent (Muchineripi et al., 2025). This research study bridges these gaps by developing a context-sensitive systematic analysis of digital technology adoption in township small businesses within the South African context. It directly implicates entrepreneurs, their views, the infrastructural and socio-economic hurdles they face, and even their policy landscape. Additionally, this research achieves a systematic review of the interaction of perceived usefulness, perceived ease of use, and facilitating conditions to impact digital usage in a township environment by using the TAM as a controlling theoretical perspective.

3. Methodology

Research Design

The study employed a qualitative systematic literature review design (SLR) approach to examine the digital technology adoption within township small businesses in South Africa. The SLR methodology was chosen based on its ability to be methodological and transparent, enabling the extensive identification, selection and synthesis of academically and policy-related literature (Bai et al., 2019). In comparison to the narrative reviews, systematic reviews have a predetermined protocol, which enhances the reliability, lineage, and quality of the research process (Boell & Cecez-Kecmanovic, 2014). The qualitative orientation was suitable for the exploratory nature of the study, as it was capable of indicating the subtle societal, infrastructural, and behavioural confines that inform technology uptake in informal sectors of the economy.

Methodological Framework

A hermeneutic approach proposed by Boell and Cecez-Kecmanovic (2014), which perceives the literature review process as itinerant and reflexive in nature, was used in this study. Thus, it allowed for continuous adjustment of the research scope in light of new findings and provided both methodological rigour and flexibility in analysis. Seven interconnected steps were used to review the process. First, an organised search was performed across several scholarly databases, including Google Scholar, Scopus, JSTOR, and ScienceDirect, to retrieve peer-reviewed articles, policy papers, and grey literature pertinent to digital technology adoption in township small businesses. At the second step, sorting, only the duplicates, outdated and irrelevant articles are filtered out. Sources before 2020 were excluded to maintain relevance, considering the rise of technological digitisation in township small businesses following the COVID-19 pandemic.

The third one, selection, involved the application of predetermined inclusion and exclusion criteria. The documents to be included satisfied the following criteria: they dealt with small businesses, were set in South Africa or other comparable developing township environments, discussed technology adoption and its use, and were in full text in English. Research that focused on localised attention of urban businesses or irrelevant ICT

was not considered. The fourth step, that is, acquiring, involved downloading and organising the obtained literature into a referencing management system to enable the annotation, retrieval, and review of the literature.

Fifth, each document was read thoroughly. The important ideas, observations, and theoretical knowledge were mentioned and contrasted in the works—the sixth step involved identifying, which entailed inductive coding of the literature to identify emerging themes. Lastly, recursive interaction with literature was possible during the refining phase. Since new themes and patterns emerged during the reading and interpretation process, the preceding steps, such as searching or selecting, were revisited to fill gaps in concepts or expand the thematic coverage. This back-and-forth looping also promoted the strength and credibility of the thematic synthesis. The hermeneutic practice thereby made for a pliable but stringent treatment of the construction of literature, perfect in the discovery of subtle concerns within a multidimensional and changing discipline of research (Boell & Cecez-Kecmanovic, 2014).

Data Sources

Secondary data was collected for this study. A total of thirty academic sources were collected. The sources included peer-reviewed journal articles, government policy reports and practitioner publications. The focus was given to the literature published after 2020, as it reflects the timeframe within which the concept of digital transformation became more intensive in South African townships. The period of the COVID-19 pandemic (2020) was considered a critical period when the trends of digital adoption intensified.

Data Analysis and Synthesis

Thematic analyses were employed for this study. Inductive coding enables the emergence of themes within the literature; instead of being pre-imposed, themes emerge naturally (Bihi, 2024). Higher-order themes, in which codes were categorised, included partial technology adoption, trust and perceived risk, infrastructure and cost barriers, and policy absence. The qualitative approach helped the researcher to preserve the richness and depth of original studies in engaging a new integrative view on a given matter.

Data Trustworthiness

The study ensured transparency by documenting search terms, inclusion and exclusion criteria, and decision-making choices. Credibility was maintained through iterative analysis and checks with academic scholars, as well as triangulation using literature styles and fields (Hamilton & Finley, 2020). The dependability of the coding process was achieved by providing an audit trail of the coding procedure, while confirmability was established through the use of writing memos and analytic reflexivity. The researcher repeatedly revisited previous interpretations to identify and address any possible bias or omission.

Ethical Considerations

This systematic literature review was a desk-based type of research, and as such, it involved no human participants and no collection of primary data. However, the work met the academic requirements regarding ethical codes, including the formulation of correct references, the elimination of plagiarism, and sensitivity in interpreting the materials used (Badu et al., 2019). All literature utilised in the review was open to the public, and due credit was accorded to them in the review.

Limitations and Mitigation Strategies

The features of the hermeneutic approach have their limitations, nevertheless. The significant shortcoming is that subjective thematic identification and interpretation are possible. To address this concern, the researcher maintained a clear audit trail, recording the decision-making processes, and employed iterative memo writing to capture reflective ideas. Additionally, the researcher practised peer debriefing sessions with colleagues familiar with the areas of digital adoption research and the study of the township's small businesses. Furthermore, although the hermeneutic approach is rich in profound results, it is not favourable to quantitative generalisation and statistical representativeness. Nevertheless, this weakness is reasonable because exploratory research questions focus on contextual rather than generalisable knowledge. It was not an exercise to deliver generalisable numerical findings, but rather an attempt to acquire sophisticated, contextually developed theoretical knowledge regarding the use of digital technology by township small businesses.

4. Results

Technology Enhances Business Performance

The evidence in the literature supports the idea that digital technology significantly contributes to the improvement of operational and financial performance in small businesses within township environments. Research indicates that the implementation of facilities such as mobile point-of-sale (POS) systems, e-wallets, and social media platforms helps small businesses grow their customer base, increase revenue, and make their operations more efficient (Tshabalala & Beharry-Ramraj, 2021). Small companies that implemented digital technologies in their operations, such as WhatsApp for Business or Facebook Marketplace, had better customer contact, increased awareness, and faster availability (Dos Santos & Duffett, 2021). Moreover, mobile payment systems like Yoco and SnapScan have enabled an increase in financial inclusion by reducing the reliance on cash and facilitating card payments in regions that previously lacked these options. On balance, the reference literature emphasises that the implementation of digital technology, even in a limited capacity, has a positive influence on the productivity of small businesses, customer engagement, and transaction efficiency.

Partial and Uneven Technology Adoption

Despite the numerous benefits of digital technology, its use in township small businesses is intermittent and limited to the most basic applications. The review demonstrates that the majority of township small businesses focus on marketing and communication as the primary areas of utilising digital tools, whereas the rest of their operations, including inventory management, accounting, and supplier arrangement, are manual (Bhoola & Chetty, 2022; Shibiti et al., 2023). This selective use is explained by overlapping obstacles, including low digital literacy skills, inaccessible data charges, poor internet connectivity, and training deficits (Mapanga & Gavaza, 2025; Mbatha et al., 2024). The implementation of digital technology by many townships' small businesses is highly fragmented and improvised, introducing digital tools into some parts of the work process, while leaving others still to use an analogue system as the basic framework of business processes. This produces a mixed operating environment that is informed by the interest in innovation and the same enduring structural limitations.

Lack of Policy and Institutional Support

The study's findings showed a lack of proper policy frameworks to guide and support the adoption of digital technology in the township environment. National plans, such as SA Connect and the National Development Plan, recognise digital technology inclusion as a requirement; however, these plans often undermine the requirements of small businesses operating in townships (Department of Small Business Development, 2023). Some studies indicate that township small businesses lack adequate support and training, as evident in policy gaps, incoherent institutional efforts, and poor outreach have failed to provide sufficient support to these businesses (Bvuma & Marnewick, 2020; Gaglio et al., 2022). Moreover, the programs of digital technology development tend to focus on the urban formal economy, neglecting the peculiarities of the setting and demands of the township environment in which small businesses operate, which often exist outside the framework of formal regulation and funding channels. These informalities of direction create ad hoc technology applications, leading to digital impairment in both the conventional and non-conventional economies.

Perceived Benefits and Entrepreneurial Openness

The study findings also show a positive inclination towards digital technology among township entrepreneurs, despite infrastructural and institutional pressures. Small business owners do not hesitate to use digital tools when they feel they can lead to measurable business advantages, including customer retention, optimisation, and marketing efficiency (Bingwa, 2024). The results also highlighted the increased interest in digital learning, particularly after the COVID-19 pandemic, when online platforms became central to maintaining continuity in businesses (Dos Santos & Duffett, 2021). The urge to embrace technology, however, is often hindered by a systematic inability to access training services, technical assistance, and subsidised infrastructure (Tshabalala & Beharry-Ramraj, 2021). This suggests that the underutilisation of digital technology by township small businesses today is not due to malicious resistance, but instead to the attitude of neglect and socio-economic constraints that exist in such township environments. Nevertheless, the attitude towards entrepreneurship is flexible and open to change, indicating the possibility of change when relevant supporting mechanisms are implemented.

5. Discussion

Digital technologies have significantly improved business performance, particularly in marketing activities, customer communication, and transaction processing (Bvuma & Marnewick, 2020; Hongoro et al., 2022; Madzvamuse et al., 2024; Matsepe & Van der Lingen, 2022). Social media platforms and mobile POS systems have become highly popular among township small businesses due to their affordability, ease of use and availability, which leads to profitability of the business (Muchineripi et al., 2025; Tshabalala & Beharry-Ramraj, 2021). Such advantages align with other international research, such as that of Malatji (2022), which demonstrated that mobile applications enabled small businesses operating in low-income environments to scale up, expedite the transaction process, and gain customer confidence. The use of the TAM also supports this perception, in which the usefulness and ease of use are crucial determinants of whether township small businesses adopt the digital technology or not (Almawash & Saleh, 2024).

Nonetheless, the study findings indicate that the digital technology adoption has been partial, inconsistent and narrowly functional in township small businesses. Most small businesses in South African townships selectively utilise digital technology for communication and payments, but not in core business operations, such as inventory management, accounting, or data analytics (Achieng & Malatji, 2022; Udimal & Biyase, 2021). The same trend was observed in most developing economies, with small businesses in the township economy being compelled to adopt technology solely because they need to, but lacking the systematic support to continue or grow in digital technology strategies (Gavaza, 2025; Matsepe & Van der Lingen, 2022). The hybrid approach adopted by township small businesses, which involves supplementing analogue systems with digital technology, is an interim solution; however, in many cases, it is a long-term survival strategy, especially in township environments where a formally established ecosystem of business support is lacking.

In addition, the study findings highlighted the lack of policy and institutional structures adapted to the digitalisation of small businesses in townships. Although the National Development Plan is working towards digitising small companies, the vast number of unregistered small businesses in townships receives little attention. This policy blind spot means that a township entrepreneur is left to informally learn and experiment with digitalisation, as Bvuma and Marnewick (2020) contend. The selective support strengthens the registered business, but on the other hand, creates structural inequality as townships' small businesses are left unattended. Similar results were described by Bingwa (2024), who emphasised that the digital consumption of small businesses in KwaZulu-Natal was not substantially supported by consistent institutional policy errors that led to the ad hoc, temporary use of technology.

Nonetheless, the obstacles mentioned above are surpassed by an entrepreneurial receptiveness to digital technology transformation. When the benefits of using digital technology are evident, township small business owners are always willing to adopt them, provided that the tool is culturally and contextually relevant (Kelly et al., 2022). It is an unexploited business agility that supports inclusive digitalisation growth. Yet, to make this potential a reality, interventions need not be limited to infrastructure and providing access to devices. Scholars argue that there should be localised training funds, subsidised information, and constant technical assistance tailored to the unique realities of township small businesses (Bvuma & Marnewick, 2020; Tshabalala & Beharry-Ramraj, 2021).

When synthesising the study findings, it becomes evident that the issue is not one of unwillingness or unawareness among small business entrepreneurs. Instead, what is missing are the enabling conditions to scale and sustain the use of digital technology: infrastructure, education, finance, and policy coherence. Therefore, digital exclusion in township business settings is a concern for technology, governance, equity, and development. This means that the road to inclusive digital technology adoption should be interdisciplinary and integrate technological, educational, economic, and political approaches, so that township businesses do not operate as mere consumers of technology but as agents involved in the digital technology economy.

Implications for Policy

Intensifying policy interventions in township small businesses is desirable in an inclusive approach that is geared towards small business development. Though frameworks like SA Connect and the National

Development Plan recognise the issue of digital technology inclusion, to a large extent, they do not take into account the realities of township small businesses (Department of Small Business Development, 2023). More attention should be paid to the establishment of township-specific programs to support the digitalisation of technology that are aimed not only at internet connection. Such packages must feature a subsidised data and equipment package for small businesses, incentives to adapt to operational technologies, and a simplified regulatory track that allows township businesses to transform themselves over time. Furthermore, the local government can significantly contribute to solving the problem by creating digital hubs in the townships, where entrepreneurs can access common and shared technological resources, mentors, and technical assistance at minimal or no cost.

Implications for Practice

Practically, NGOs, business development agencies and other players in the private sector must turn their attention towards capacity-building projects, developed to suit the township environment. Training sessions must be made modular, language-supportive, and in a form that is easily accessible through mobile workshops, community centres, and peer learning groups. Additionally, financial institutions play a crucial role in facilitating greater adoption. Coordinating on products: these actors can assist in filling these affordability gaps by designing financial products that specifically target township small businesses, such as microloans to invest in technologies or waivers of transaction fees via mobile payments. Additionally, collaboration with digital service providers, coupled with township business associations, can be leveraged to build more trust and facilitate faster uptake, thanks to the existing structures within communities that promote credibility and reach.

6. Recommendations

Policy and Government Interventions

The local government should subsidise the most important digital technologies by introducing the Township Digital Empowerment Fund (TDEF), which will cover the cost of mobile POS systems, cost-effective smartphones, and basic inventory software. The specified form of funding will directly eliminate affordability issues that restrain the use of digital technologies in township setups. Additionally, a Township Digital Adoption Policy Framework is to be designed to outline tangible implementation strategies for expanding digital infrastructure, enhancing robust internet connections, and providing tax waivers to small businesses that adopt proven best digital models. Moreover, local and provincial governments should also incorporate digital literacy services into their existing township economic development plans. By mainstreaming technology skills into the established activities of comprehensive small business support programmes, township entrepreneurs are empowered to adopt and continue using digital technology applications, thereby ensuring inclusive economic growth.

Training and Capacity-Building Programs

Higher education institutions, local development agencies, and NGOs should design and offer modular training at the community level, including skills development such as mobile marketing, digital payments, and basic financial management, utilising digital tools. These programs are to be held in locally spoken languages and in convenient community centres, which include educational buildings and community halls, to be more approachable to a maximum number of people. Furthermore, a digital mentorship program should be implemented, where hand-picked digital champions (entrepreneurs who managed to implement technology into their small businesses) would mentor and advise their fellow entrepreneurs. This strategy recognises the value of society and the importance of practical, experience-oriented learning. Additionally, learning can also be boosted through the presence of collaborative bootcamps organised in partnership with the private sector (e.g., technology companies and telecom providers). All digital technology adoption bootcamps must be practical and applied in real life, so that township entrepreneurs can practice the skills and not just theoretical knowledge.

Private Sector and Fintech Support

The technology providers and fintech corporations should design customised digital solutions to suit the township's small businesses. The key features that should be offered in these solutions include basic operations such as cost control and inventory tracking, rather than highly complex, enterprise-based functions that might be out of reach for small township businesses. Additionally, telecom providers have the opportunity to offer

discounted or flexible data plans that include small business applications. Meanwhile, banks and fintech companies can introduce a structure where, under certain conditions, transaction fees are reduced or a cashback is offered on online transactions. These economic reasons can reduce the cost barrier and increase regular visits to digital platforms. There should be collaborative, co-branded outreach efforts with fintech companies, local influencers, and township small business associations, which will be utilised as an outreach tool to demonstrate successful use cases, demystify technology, and encourage community buy-in.

Stakeholder Collaboration

Most of these suggestions require joint cross-sector efforts to be implemented effectively. The task force should be established at both the municipal and provincial levels and should comprise representatives from the government, non-governmental organisations, the business sector, academic institutions, and township small business associations. The responsibility of this task force would entail aligning strategies, tracking the progress of technology adoption, and adjusting interventions based on community feedback. To maintain accountability, common monitoring and evaluation systems must be established, allowing all stakeholders to track the levels of digital technology adoption and business-level outcomes, and share lessons learnt continuously. Lastly, a pilot and scale-up strategy should be implemented. Stakeholders can also experiment with integrated digital support models in selected townships and replicate the models in other regions, depending on the evidence and success rate.

This paper is limited by its dependency on secondary literature, which may vary in terms of methodology stringency, context specificity, and representativeness. The analysis combined findings from different township contexts, but was unable to explain regional, sectoral, or demographic differences in detail. In future research studies, a quantitative or mixed approach to examining the level and effect of technology adoption in the townships' small businesses should be adopted. Future research studies are also advised to pay more attention to the assessment of not only the adoption but also the use of technology outcomes. These involve examining the long-term impact of digital tools on revenue growth, employment creation, efficiency, and market access.

Conclusion

The study has examined the use of technology in township small businesses in South Africa, drawing on a systematic review of academic and policy literature. The evidence shows that the interest in and perceived usefulness of digital tools are evident, although their adoption is not yet complete. As the research findings indicate, their use is partial, with some structural barriers, poor infrastructure, low digital literacy, and inadequate institutional support. The study highlighted the need to stop treating digital adoption as a mere technical challenge, but rather as a socio-economic development agenda that should be integrative and context-sensitive in its approaches. The reduction of the digital divide in township economies implies that stakeholders will be involved in multi-pronged activities, which comprise community-based training programmes, financial investment in infrastructure, and the establishment of coherent policies that acknowledge and assist township small businesses. Specifically, community engagement through digital technology literacy and entrepreneurship services offered by higher education institutions can play a crucial role, as they stand at the intersection of local knowledge and national policies.

Additionally, campaigns on affordable and relevant technologies can enable township entrepreneurs to use the appropriate tools that fit their small business model and limitations. The study concludes that small businesses in townships are not technology-resistant but are instead locked out through systematic exclusions. Tapping into their already open yet resilient outlook by developing well-informed interventions, both economically and socially, can unlock immense potential, making a substantial contribution to South Africa's overall digitalisation and economic convergence targets.

References

- Abdul-Halim, N. A., Vafaei-Zadeh, A., Hanifah, H., Teoh, A. P., & Nawaser, K. (2022). Understanding the determinants of e-wallet continuance usage intention in Malaysia. *Quality and Quantity*, 56(5), 3413-3439. <https://doi.org/10.1007/s11135-021-01276-7>
- Achieng, M. S., & Malatji, M. (2022). Digital transformation of small and medium enterprises in sub-Saharan Africa: A scoping review. *The Journal for Transdisciplinary Research in Southern Africa*, 18(1), 1-13. <https://doi.org/10.4102/td.v18i1.1257>
- Akinsola, S., & Munepapa, J. (2021). Utilisation of e-collaboration tools for effective decision-making: A developing country public-sector perspective. *SA Journal of Information Management*, 23(1), 1-7. <https://doi.org/10.4102/sajim.v23i1.1099>
- Almawash, M., & Saleh, M. (2024). Factors Influencing Consumers' Attitudes Toward Adopting E-Wallets in Purchase Transactions. *International Journal of Economics, Business and Management Research*, 08(06), 148-170. <https://doi.org/10.51505/ijebmr.2024.8610>
- Amankwah-amoah, J., Khan, Z., Wood, G., & Knight, G. (2021). COVID-19 and digitalisation: The great acceleration. *Journal of Business Research Journal*, 136, 602-611. <https://doi.org/10.1016/j.jbusres.2021.08.011>
- Asongu, S. A. (2021). The Effects of Mobile Phone Technology, Knowledge Creation and Diffusion on Inclusive Human Development in Sub-Saharan Africa. *Journal of the Knowledge Economy*, 12(3), 1367-1398. <https://doi.org/10.1007/s13132-020-00668-8>
- Badu, E., O'Brien, A. P., & Mitchell, R. (2019). An integrative review on methodological considerations in mental health research – design, sampling, data collection procedure and quality assurance. *Archives of Public Health*, 77(1), 1-15. <https://doi.org/10.1186/s13690-019-0363-z>
- Bai, Z., Jain, N., Kurdyukov, R., Walton, J., Wang, Y., Wasson, T., Zhu, X., & Chircu, A. M. (2019). Conducting Systematic Literature Reviews in Information Systems: An Analysis of Guidelines. *Issues in Information Systems*, 20(3), 83-93. https://doi.org/10.48009/3_iis_2019_83-93
- Bhatt, A. (2016). Factors affecting customer's adoption of mobile banking services. *Journal of Internet Banking and Commerce*, 21(1), 1-22. <https://doi.org/10.2991/assehr.k.220202.028>
- Bhoola, S., & Chetty, D. (2022). Experiences and Perceptions of Economically Marginalised Women Food Vendors: An Exploratory Study of Informal Food Traders in Durban, South Africa. *Journal of Social Inclusion*, 13(1), 25-41. <https://doi.org/10.36251/josi238>
- Bihu, R. (2024). Qualitative Data Analysis: Novelty in Deductive and Inductive Coding. *Authorea Preprints*, 1-5. <https://doi.org/10.31124/advance.24143088.v2>
- Bingwa, L. L. (2024). A framework for supporting technological innovation by manufacturing small and medium enterprises in KZN. *Durban University of Technology*, 15(1), 37-48. <https://openscholar.dut.ac.za/items/d13e6b22-f4fc-4daa-a8cd-f6d7744274bf>
- Boell, S. K., & Cecez-Kecmanovic, D. (2014). A hermeneutic approach for conducting literature reviews and literature searches. *Communications of the Association for Information Systems*, 34(1), 257-286. <https://doi.org/10.17705/1cais.03412>
- Bomani, M., Phiri, M., & Mashingaidze, M. (2024). Challenges and Motivations of Women Entrepreneurs in a Crisis: A South African Perspective. *African Journal of Gender, Society and Development (Formerly Journal of Gender, Information and Development in Africa)*, 13(2), 159-183. <https://doi.org/10.31920/2634-3622/2024/v13n2a8>
- Bvuma, S., & Marnewick, C. (2020). Sustainable livelihoods of township small, medium and micro enterprises towards growth and development. *Sustainability*, 12(8). <https://doi.org/10.3390/SU12083149>
- Chametzky, B. (2023). Writing Memos: A Vital Classic Grounded Theory Task. *European Journal of Humanities and Social Sciences*, 3(1), 39-43. <https://doi.org/10.24018/ejsocial.2023.3.1.377>
- Chingapi, A., & Steyn, A. A. (2022). SMEs in South Africa: The Era of Adopting Mobile Payment Solutions. *Lecture Notes in Networks and Systems*, 235, 429-447. https://doi.org/10.1007/978-981-16-2377-6_41
- Cromhout, D., & Duffett, R. (2022). Exploring the impact of student-developed marketing communication tools and resources on SMEs' performance and satisfaction. *Small Business International Review*, 6(1), e422. <https://doi.org/10.26784/sbir.v6i1.422>
- Davis, F. D. (1993). User acceptance of information technology: system characteristics, user perceptions and behavioural impacts. *International Journal of Man-Machine Studies*, 38(3), 475-487. <https://doi.org/10.1006/imms.1993.1022>
- Department of Small Business Development. (2023). <https://www.dsbd.gov.za/node/620>

- Donga, G., & Chimucheka, T. (2025). Hospitality Entrepreneurship In A Resource-Constrained Environment Amid The Covid-19 Pandemic: Evidence From Guesthouse Operators. *Journal of Management Small and Medium Enterprises (SME's)*, 18(2), 805-820. <https://doi.org/10.35508/jom.v18i2.20675>
- Dos Santos, J., & Duffett, R. (2021). Exploring social media usage as a communication channel among independent food retailer SMEs in South Africa. *Small Business International Review*, 5(2), e392. <https://doi.org/10.26784/sbir.v5i2.392>
- Gaglio, C., Kraemer-Mbula, E., & Lorenz, E. (2022). The effects of digital transformation on innovation and productivity: Firm-level evidence of South African manufacturing micro- and small enterprises. *Technological Forecasting and Social Change*, 182, 121785. <https://doi.org/10.1016/j.techfore.2022.121785>
- Gavaza, B. K. (2025). Drivers of Artificial Intelligence adoption in township small businesses in South Africa. *Insights into Regional Development*, 7(4), 116-129. <http://doi.org/10.70132/c9883956762>
- Gavaza, B. K., Donga, G., & Muchineripi, J. N. (2025a). Microfinance and women's entrepreneurship in South African townships. *International Journal of Business Ecosystem & Strategy*, 7(4), 12-22. <http://dx.doi.org/10.36096/ijbes.v7i4.872>
- Gavaza, B. K., Fihla, S., & Stofile, R. (2025b). The Radical and Disruptive Entrepreneurial Innovation Culture in South Africa's Townships. *International Journal of Entrepreneurship, Business and Creative Economy*, 5(1), 74-90, <https://doi.org/10.31098/ijebce.v5i1.2785>
- Hamilton, A. B., & Finley, E. P. (2020). Reprint of: Qualitative methods in implementation research: An introduction. *Psychiatry Research*, 283, 112629. <https://doi.org/10.1016/j.psychres.2019.112629>
- Hongoro, C., Adonis, C., & Sobane, K. (2022). Innovation for inclusive development and transformation in South Africa. In AOSIS Books. <https://doi.org/10.4102/aosis.2022.bk384>
- Joseph, J., & Sengul, M. (2024). Organisation Design: Current Insights and Future Research Directions. *Journal of Management*, 51(1), 249-308. <https://doi.org/10.1177/01492063241271242>
- Kayser, K., Telukdarie, A., & Philbin, S. P. (2023). Digital Start-Up Ecosystems: A Systematic Literature Review and Model Development for South Africa. *Sustainability*, 15(16). <https://doi.org/10.3390/su151612513>
- Kelly, T., Nkondo, L. G., & Zindiye, S. (2022). The Impact of the Regulatory Environment on Small Business Growth in Polokwane Township. *International Journal of Business and Economics Research*, 11(4), 228-249. <https://doi.org/10.11648/j.ijber.20221104.15>
- Ligthelm, A. A. (2008). The impact of shopping mall development on small township retailers. *SAJEMS NS*, 11(1), 37-53. <https://doi.org/10.4102/sajems.v11i1.376>
- Ligthelm, A. A. (2016). Entrepreneurship and Small Business. *Southern African Business Review*, 14(3), 131-153. <https://doi.org/10.1007/978-1-137-43034-2>
- Madzvamuse, S., Kadyamatimba, A., & Munyoka, W. (2024). The influence of technological preparedness on trust in e-commerce by South African SMEs with demographics as mediation variables. *International Journal of Research in Business and Social Science*, 13(2), 446-457. <https://doi.org/10.20525/ijrbs.v13i2.2993>
- Maichum, K., Parichatnon, S., & Peng, K. C. (2016). Application of the extended theory of planned behaviour model to investigate purchase intention of green products among Thai consumers. *Sustainability*, 8(10), 1-20. <https://doi.org/10.3390/su8101077>
- Mapanga, A., & Gavaza, B. K. (2025). Towards a unified conceptual framework for understanding the entrepreneurship construct. *International Journal of Business Ecosystem & Strategy*, 7(3), 102-113. <https://doi.org/10.36096/ijbes.v7i3.828>
- Marolt, M., Lenart, G., Kljajić Borštnar, M., & Pucihar, A. (2025). Exploring the Digital Transformation Journey Among Micro-, Small-, and Medium-Sized Enterprises. *Systems*, 13(1), 1-23. <https://doi.org/10.3390/systems13010001>
- Matsepe, N. T., & Van der Lingen, E. (2022). Determinants of emerging technologies adoption in the South African financial sector. *South African Journal of Business Management*, 53(1), 1-12. <https://doi.org/10.4102/sajbm.v53i1.2493>
- Mbatha, Z. L., Moodley, M., Nyika, F., & Ruzengwe, C. (2024). Investigating Marketing Challenges Faced by South African SMEs during. *International Journal of Advanced Business Studies*, 3(3). <https://doi.org/10.59857/IJABS7480>
- Muchineripi, J. N. (2025). Women entrepreneurship in South Africa: peculiarities of stress. *Insights into Regional Development*, 7(4), 102-115. <https://doi.org/10.70132/b6273472929>
- Muchineripi, J. N., Donga, G., & Gavaza, B. K. (2025). Immigrant entrepreneurs' competitive advantage: The role of cultural and disruptive innovation. *International Journal of Business Ecosystem & Strategy*, 7(3) <https://doi.org/10.36096/ijbes.v7i3.843>

- Mukuni, J. (2023). Behold the Fourth Industrial Revolution and How to Keep Pace with Workplace Competencies in an Ever-Changing World of Work! *The Changing Landscape of Workplace and Workforce*, 1-14. <https://doi.org/10.5772/intechopen.1002648>
- Nhuvira, C. E., & Dorasamy, N. (2021). Adapt or Die: The Adoption of Digital Marketing by Fashion SMMEs in South Africa. *Journal of Management Information and Decision Sciences*, 24(S6), 1-16. <https://www.abacademies.org/articles/adapt-or-die-the-adoption-of-digital-marketing-by-fashion-smmes-in-south-africa.pdf>
- Ojong, N., Simba, A., & Dana, L. P. (2021). Female entrepreneurship in Africa: A review, trends, and future research directions. *Journal of Business Research*, 132, 233-248. <https://doi.org/10.1016/j.jbusres.2021.04.032>
- Otieno, J. A., & Wawire, N. (2023). Effects of Financial Sources and Socio-Cultural Factors on Performance of Women-Owned Manufacturing Enterprises in Kisumu City County, Kenya. *European Journal of Economic and Financial Research*, 7(4), 130-147. <https://doi.org/10.46827/ejefr.v7i4.1592>
- Paul, J., Ueno, A., Dennis, C., Alamanos, E., Curtis, L., Foroudi, P., Kacprzak, A., Kunz, W. H., Liu, J., Marvi, R., Nair, S. L. S., Ozdemir, O., Pantano, E., Papadopoulos, T., Petit, O., Tyagi, S., & Wirtz, J. (2024). Digital transformation: A multidisciplinary perspective and future research agenda. *International Journal of Consumer Studies*, 48(2), 1-28. <https://doi.org/10.1111/ijcs.13015>
- Shibiti, R., Masabo, T. T., & Ladzani, W. (2023). Readiness of SMMEs for the adoption of the fourth industrial revolution in Mamelodi Township. *International Journal of Research in Business and Social Science*, 12(8), 33-47. <https://doi.org/10.20525/ijrbs.v12i8.2986>
- Shiferaw, Y. A. (2024). A spatial analysis of the digital gender gap in South Africa: Are there any fundamental differences? *Technological Forecasting and Social Change*, 204, 123443. <https://doi.org/10.1016/j.techfore.2024.123443>
- Slinger, E. I., Pather, S., & Du Plessis, M. (2024). Determinants of mobile application adoption among micro-entrepreneurs. *South African Journal of Information Management*, 26(1), 1-12. <https://doi.org/10.4102/sajim.v26i1.1731>
- Small Enterprise Development Agency (Seda). (2023). [https://nationalgovernment.co.za/entity_annual/3998/2024-small-enterprise-development-agency-\(seda\)-annual-report.pdf](https://nationalgovernment.co.za/entity_annual/3998/2024-small-enterprise-development-agency-(seda)-annual-report.pdf)
- Tau, M., Tselepis, T., & Nieuwenheizen, C. (2024). Digital literacy in townships: The problems and the promise for SMMEs. *Journal of Contemporary Management*, 21(1), 279-297. <https://doi.org/10.35683/jcm23.008.260>
- Tshabalala, M., & Beharry-Ramraj, A. (2021). Examining The 4th Industrial Revolution and South African Youth Entrepreneurship's Linkage to Covid-19: Opportunities and Challenges. *Gender and Behaviour*, 19(1). <https://www.ajol.info/index.php/gab/article/view/210062>
- Udimal, T. B., & Biyase, M. (2021). Identifying the Binding Constraints of the Township Economy of South Africa. *The Journal of Developing Areas*, 55(4), 455-464. <https://dx.doi.org/10.1353/jda.2021.0098>
- Township Tech Sector Intelligence Report (2021). https://www.westerncape.gov.za/edat/files/wcg-blob-files?file=2024-11/townshiptech_sector_intelligence_report_nl.pdf&type=file

Author Contributions: the authors contributed equally. All authors have read and agreed to the published version of the manuscript.

Bramwell Kundishora GAVAZA

ORCID: <https://orcid.org/0000-0002-3684-5166>

Obrain Tinashe MUIRE

ORCID: <https://orcid.org/0000-0003-3133-8744>

Copyright © 2026 by author(s). Publishing rights by Entrepreneurship and Sustainability Center

This work is licensed under the Creative Commons Attribution International License (CC BY).

<http://creativecommons.org/licenses/by/4.0/>

