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DRIVERS OF ARTIFICIAL INTELLIGENCE ADOPTION IN TOWNSHIP SMALL BUSINESSES IN SOUTH AFRICA

Bramwell Kundishora Gavaza

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

E-mail: bgavaza@wsu.ac.za

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Abstract: This study examined the relationship between Artificial Intelligence (AI) and community structures governance in scaling sustainable township businesses in South Africa. A qualitative design was used, and 30 semi-structured interviews were held with entrepreneurs in townships in the Eastern Cape. The results indicate potential for improving business with AI tools, including mobile payment systems and digital platforms; however, this is hindered by low digital literacy, inadequate infrastructure, and a distrust of technology. The community structures, such as cooperatives and ward committees, were observed to affect the acceptance and diffusion of AI in business activities. The paper found collaborations between technology innovation and participatory governance, demonstrating that hybrid strategies can enhance inclusive development. The study concludes by proposing a policy framework that unites AI and local governance to strengthen township economies and foster resilience.

Keywords: Artificial Intelligence (AI); community structures governance; township businesses; sustainable development; financial inclusion

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1. Introduction

South Africa's township economy is a cornerstone of informal enterprise and local livelihoods, yet it remains structurally marginalised due to apartheid-era spatial exclusions and ongoing systemic barriers (Aspen Network of Development Entrepreneurs, 2021; Gavaza et al., 2025b). Township businesses, while central to community survival, face persistent challenges, limited infrastructure, poor access to finance, low digital literacy, and exclusion from formal value chains (Muchineripi et al., 2025; Mago & Modiba, 2024).

Artificial intelligence (AI) offers transformative potential to overcome these constraints by enhancing operational efficiency, expanding market access, and promoting financial inclusion (World Bank Group, 2022; Kansrini et al., 2024; Pechová et al., 2024; Fichter & Angelov, 2024; Mohammed et al., 2025a, 2025b; Shamsuddoha et al., 2025; Čižo et al., 2025). However, adoption remains uneven due to infrastructural deficits, financial limitations, and cultural scepticism toward technology (Chanday, 2023; Nkwei et al., 2023). Crucially, the role of community governance structures, such as ward committees and cooperatives, in shaping technology acceptance and business legitimacy is underexplored (Khosa et al., 2017; Moloi et al., 2022).

This study presents a novel perspective by examining how local governance mechanisms affect the adoption of AI in township small businesses. It bridges the gap between technological innovation and informal institutional dynamics, offering insights into how AI can be effectively integrated into resource-constrained, culturally embedded entrepreneurial ecosystems. By doing so, it contributes to the design of inclusive, scalable frameworks for digital transformation in South Africa's township economy.

2. Theoretical Framework

2.1 Institutional Theory

Institutional Theory provides a valuable framework for understanding how formal and informal institutions shape the adoption of AI in township small businesses. Drawing on Scott's (2008) three institutional pillars — regulative, normative, and cultural-cognitive — the Theory explains how rules, norms, and shared beliefs influence entrepreneurial behaviour. In township economies, regulative institutions such as licensing requirements, municipal bylaws, and government support schemes determine the legitimacy and access of businesses to formal systems (Rogerson, 2019). Normative institutions, including community norms and informal practices like reciprocal trade and informal lending, guide what is socially acceptable and trusted (Khosa et al., 2017). Meanwhile, cultural-cognitive institutions reflect collective perceptions about entrepreneurship and technology, often manifesting as scepticism or optimism toward AI (Powell & DiMaggio, 2023).

The Theory is particularly relevant in South African townships, where governance is hybrid, blending formal municipal oversight with deeply rooted informal systems. While supportive policies and digital literacy initiatives may create a conducive environment for AI adoption, uptake remains limited if normative and cultural-cognitive barriers persist (Mohammed et al., 2025b). Township entrepreneurs may resist AI if it disrupts established trust networks or threatens township business models that sustain livelihoods (Shamsuddoha et al., 2025). Conversely, when AI is introduced through trusted community actors or embedded within familiar governance systems, it is more likely to be accepted, even in low-formalisation contexts. Institutional Theory thus reveals the dual role of governance as both a facilitator and inhibitor of innovation, depending on how well it aligns with local norms and beliefs (Natarajan et al., 2022). By framing AI adoption as an institutional, not merely technological, process, the Theory enables a more nuanced understanding of the visible and invisible rules that govern township economies (Magoro et al., 2023).

2.2 Sustainable Livelihoods Framework

The Sustainable Livelihoods Framework (SLF) complements Institutional Theory by offering an entrepreneurial-centred lens to assess how AI and governance interventions affect township livelihoods (Magoro et al., 2023). Developed by Chambers et al. (1991), the SLF identifies five key forms of capital: human (skills and digital literacy), social (trust networks and cooperation), financial (access to credit and AI-enabled financial tools), physical (infrastructure and connectivity), and natural (land and water resources) (Scoones, 2015; Charman et al., 2017; UNDP, 2023).

SLF facilitates analysis of how AI technologies interact with these assets to shape outcomes. For example, mobile payments may enhance financial capital, but limited digital skills or poor infrastructure can hinder adoption (World Bank Group, 2019). Social capital is particularly influential, as trust in community structures often determines technology uptake (Charman et al., 2017). The framework also underscores sustainability, advocating for interventions that strengthen rather than erode livelihood assets, especially in resource-constrained environments such as South African townships (Natarajan et al., 2022).

3. Literature Review

3.1 AI Adoption and Operational Transformation in Township Businesses

Township small businesses are increasingly recognised as potential beneficiaries of AI technologies (Shamsuddoha et al., 2025). Tools such as automated inventory systems, digital payments, and chatbots streamline administrative tasks and improve transparency (Bughin et al., 2018; Mhlanga, 2021). In South Africa, platforms like Yoco and SnapScan exemplify the practical benefits of AI in simplifying record-keeping and facilitating transactions (World Bank Group, 2019). However, adoption remains limited due to barriers such as affordability, inadequate digital literacy, and insufficient institutional support (Mhlanga, 2021). Addressing these challenges requires not only infrastructure investment but also targeted capacity-building initiatives that enhance both access and user competence. Peer-to-peer learning and community-based training have proven effective in overcoming resistance and fostering trust.

Beyond operational efficiency, AI enables township entrepreneurs to access broader markets through platforms like Takealot and Facebook Marketplace, which use algorithms to match buyers and sellers, optimise pricing, and analyse consumer behaviour (Gavaza et al., 2025b; Magoro et al., 2023). Despite this potential, high data costs, unreliable logistics, and limited trust in digital systems continue to constrain digital market participation (Charman et al., 2017). Successful local adopters often catalyse broader diffusion, underscoring the need for state-supported infrastructure and data subsidies to align innovation with local socio-economic realities (World Bank Group, 2022). AI also promotes financial inclusion by enabling secure mobile money services and AI-driven credit scoring, which reduce reliance on cash and expand access to microfinance (Mhlanga, 2021; Akinrinde et al., 2024; Gavaza et al., 2025a; Mago & Modiba, 2024). Nonetheless, adoption is hindered by infrastructural deficits, regulatory gaps, and concerns over data privacy and fraud, highlighting the need for transparent governance and inclusive digital policies (Mhlanga, 2023).

3.2 Community Structures, Governance, and Small Business Support

In township settings, formal control is usually restricted or unavailable; therefore, local governance systems play a central role. Market practices are regulated; resource distribution and the legitimacy of entrepreneurs are determined by community councils, cooperatives, and business forums (Pieterse & Coggin, 2023). These mechanisms alleviate the restrictions in formal institutions by providing dispute resolution and reducing transaction costs (Asoba & Mefi, 2020; Muchineripi et al., 2025). They also address mistrust towards state-led systems in post-apartheid South Africa by instilling authority in socially accepted structures (Wiid & Cant, 2021). Nevertheless, the governance process is inconsistent; gatekeeping and favouritism may restrict access to opportunities (Pieterse, 2019). The two-fold role highlights the concept of community governance as both a facilitator and a potential hindrance to inclusive development. Thus, township leadership demonstrates that legitimacy is not an institutional concept but a socially constructed one.

Community engagement in decision-making also lends greater weight to entrepreneurial outcomes through accountability and inclusiveness. Participatory structures, including savings groups and cooperative boards, enable different voices to shape business priorities (Moloi et al., 2022). Such inclusivity fosters resilience and trust in business networks, which in turn minimises the risks faced by township businesses (Wiid & Cant, 2021). The involvement strengthens social capital and promotes cooperation and readiness to explore AI technologies (Khosa et al., 2017). Therefore, concerted institutional changes and inclusion practices lead to equity entrenched in participation, which helps boost sustainability and innovation within the townships.

Community norms of trust, accountability, and collective responsibility also include sustainability in township businesses. Through informal institutions, a set of rules surrounds equitable prices, repayment, and ethics, which minimises uncertainty in economic transactions (Wiid & Cant, 2021). The norms, supported by localised businesses, enhance the power of resource pooling and collective bargaining (Chomane & Biljohn, 2023). Good

governance facilitates responsible behaviour, such as reinvestment in society and innovation (Magoro et al., 2023). On the other hand, poor governance permits predatory behaviour, which undermines trust and stifles innovation (Chandavy, 2023). Accountability systems based on trust are also crucial in upholding community norms and facilitating collaboration (UN Secretary General, 2025). With such systems being transparent and consistent, cohesion and flexibility are also maintained, which provides a platform on which new technologies can be effectively adopted (Mhlanga, 2021). Therefore, social capital, trust, and accountability are crucial to the stability and sustainable development of township businesses.

3.3 Artificial Intelligence Technologies and Local Governance Mechanisms

There is an increasing scepticism among researchers regarding the idea that community stakeholders need to co-design AI solutions, since only participatory development of solutions can be permissible and relevant in low-resource settings (Marchut et al., 2021). The participatory techniques are applied to surface local issues, such as payment, language, and informal trust, which generic technologies would disregard; therefore, increasing the likelihood that the implementation of such tools will be successful (Akbari et al., 2024). At the institution, co-design supplements the normative and cultural-cognitive legitimacy through technological change by integrating it into social norms and leadership structures (Scott, 2014). The difference in regulative policies and locally driven design practices facilitates the distribution of responsibilities and usability (Linders, 2012; Meijer & Bolivar, 2016). Hybrid institutional structures, founded on municipal governance, community organisations, and providers within the private sector, are more likely to sustain innovation than those created through a top-down approach (Asoba & Mefi, 2020). The promotion of the diffusion of new platforms and securing the social values is possible through the development of legitimacy provided by local actors (Ngota et al., 2025). Rather, co-design is not merely a good practice, but a kind of institutional strategy that helps coordinate the rationales of technology and the legitimacy of governance (Scott, 2014).

Studies of smart cities and local e-government reveal that institutional capacity, regulatory clarity, and inter-agency coordination characterise the increased service provision enabled by digital tools, as well as economic inclusion (Anthopoulos, 2017). Hypothetically, this type of integration is symptomatic of institutional isomorphism and learning at the policy level, where urban centres of the same size shift to digital when they observe that the model is working and when the policy incentives align (Powell & DiMaggio, 2023). Therefore, the UNDP (2022) warns that technology can be more flexible in relation to institutional readiness than in accordance with what is referred to as islands of innovation, which do not expand beyond pilot circumstances. Thus, implementing AI in routine administrative tasks, such as permits, market regulation, and payments, can still be achieved without compromising the potential for community control (Meijer & Bolívar, 2016). Another important factor is regulation, where data management, flexibility, and privacy regulations determine how citizens and companies accept services mediated by AI (Petersen et al., 2018). This implies that the intentional institutional design is required to ensure integration and mitigate the threat of non-inclusion (Anthopoulos, 2017; Scott, 2014). In this way, the literature considers the integration process through the prism of coordination and the reformation of state governance.

The case of mobile money in East Africa is frequently cited in the literature as an example of how collaboration between technological innovation and local institutions can facilitate some broad-based benefits. It is an example of how regulatory flexibility, provider networks, and community trust structures worked together to facilitate fast adoption and economic change. It is noted that local intermediaries provided human touchpoints, rules were adjusted to accommodate emerging practices, and product design was iterative, responding to the actual needs of users (Edwards et al., 2016). Scholars argue that these processes, although not straightforwardly applicable to AI, offer significant insights for AI in South African townships, particularly regarding the co-evolution of technology and institutions (World Bank Group, 2022). Although AI presents varying levels of technical challenges, the idea of balancing governance, trust, and innovation remains at the centre stage (Mohammed et al., 2025b; Poruban, 2023).

3.4 Barriers and Enablers to AI Integration in the Township Economy

The literature has consistently highlighted that digital literacy and training deficits are key impediments to the meaningful implementation of AI in township businesses (Akinrinde et al., 2024; Gavaza et al., 2025b). Simply being able to access devices or platforms does not mean that they can be used efficiently, as entrepreneurs often lack the expertise to incorporate digital tools into their business operations effectively. South African research indicates that standardised training models often fail because they do not account for local languages, pedagogies, and livelihood contexts. The Sustainable Livelihoods approach emphasises that the development of human capital should be integrated into social learning networks to become a long-term, sustainable process (Mohammed et al., 2025b). Institutional Theory suggests that low digital literacy is often accompanied by normative and cognitive barriers, as mistrust within communities hinders the exploration of new systems (Akinrinde et al., 2024). There are policy frameworks that suggest blended capacity-building models, including formal training alongside mentorship, peer learning, and community-led models (Marchut et al., 2021). Without such combined strategies, more sophisticated AI tools will have exclusionary effects, serving to strengthen, rather than eliminate, structural inequities.

Coupled with training, a lack of infrastructure and connectivity is extensively reported as a significant impediment to adopting AI in township businesses. In the view of SLF, these deficits constitute vulnerabilities in physical capital that undermine the rate of return on human and financial capital investments (Matheus et al., 2021). Targeted interventions, including subsidised data, electrification, and community Wi-Fi projects, are often essential to policy analyses aimed at addressing inequalities in access (Mhlanga, 2021). Remata and Lomibao (2021) caution that the inequalities that unequal infrastructure upgrades may reinforce will benefit those with greater means, leaving disadvantaged groups behind.

The cross-cutting issues of trust, privacy, and data governance also arise as other critical factors that have a powerful impact on AI implementation among marginalised groups. Studies indicate that the fear of fraud, abuse of personal information, and a lack of a redress system discourage business individuals from adopting AI technology (Muchineripi et al., 2025). When AI is involved, transparency and accountability of algorithms, as well as procedural justice, are necessary to establish legitimacy (Matheus et al., 2021; Mkwela et al., 2024).

4. Methodology

This study employed a qualitative research design to investigate the intersection of AI and local governance in scaling sustainable township businesses in South Africa. The qualitative methods were selected because they offer the opportunity to understand the intricate social processes that cannot be described in numbers (Creswell & Creswell, 2018). Context-specific institutional, cultural, and technological dynamics shape township economies, so qualitative inquiry is especially appropriate (Denzin & Lincoln, 2018). The methodology enabled the researcher to capture subtle perceptions, lived experiences, and unofficial practices of businesspersons and community players. Moreover, the qualitative research helped to investigate interactions between AI usage, institutional frameworks, and the results of livelihoods (Silverman, 2017). The research process is also flexible in exploring participants' responses, allowing for greater clarity and a deeper understanding of sensitive issues such as trust, technology use, and institutional legitimacy. Holistically, a qualitative design ensured that the results are contextual and reflect the reality of the participants, rather than abstract assumptions (Creswell & Creswell, 2018; Gill, & Baillie, 2018).

Semi-structured interviews were used to gather the data, during which 30 participants were interviewed. The sampling approaches employed include purposive and snowball sampling strategies, designed to fully capture the diversity and a broad range of perspectives relevant to the study (Etikan, 2016). Interviews ranged between 20 and 30 minutes each, making the answers more comfortable, authentic, and accurate. The systematisation of patterns and themes was applied through the use of thematic analysis on the dataset (Braun & Clarke, 2006). Deductive

coding guided by Theory and inductive knowledge that resulted from the lived experience of participants was performed (Nowell et al., 2017).

The study was conducted at a township in the Eastern Cape, South Africa. Thus, future studies should be undertaken in geographical areas other than the Eastern Cape province. This study adhered to ethical considerations by ensuring that all participants provided informed consent, which was obtained through a thorough briefing on the study's purpose, scope, and voluntary nature of their involvement. The issue of morality was highly upheld through the principles of informed consent, confidentiality, and the use of pseudonyms, ensuring that the participants' identities were not disclosed. The study ensured participants' privacy by excluding personal identifiers from the data and guaranteeing the anonymity and confidentiality of the participants. The information gathered was stored securely and used only for academic purposes. Cultural and community sensitivity was upheld throughout the research process, and all attempts were made to minimise the harm or discomfort to the subjects.

5. Results

This section presents the study's findings, organised thematically. Themes include operational efficiency, market access, financial inclusion, governance, and barriers to the adoption of AI.

5.1 The Potential of AI in Enhancing Operational Efficiency, Market Access, and Financial Inclusion

Township entrepreneurs were aware of the opportunities offered by AI-enabled tools to enhance efficiency and customer engagement; however, their understanding of these applications was limited. Entrepreneurs often raised the possibility of platforms assisting with record-keeping, stock management, and customer access. As an example, Mildred said: *"Assuming that there was an app to monitor my stock, I would save time and not lose sales when the stock is over. Sometimes, I only realise I am out of stock when a customer asks, and it is too late. An app would help me keep track and alert me before I run out"*.

Others emphasised the importance of expanding markets online, as provided in Thabo's excerpts: *"I have heard of people who sell on Facebook Marketplace, and they get customers miles away; I would have done the same thing. In my opinion, it is possible to do the same thing. I do not know how to start, but I believe it can help me reach more people than just those who walk past my shop"*.

Nevertheless, the concept of financial inclusion, utilising AI tools such as mobile banking, was not fully leveraged. One of the participants replied that they do not like e-wallets because they are afraid of losing their money, but it can help them receive payments faster. This potential was reflected in the comments of stakeholders, who noted that AI can be utilised to conduct risk assessments of microloans and digital payments. This implies that AI has the potential for transformation when presented in simple and accessible formats. The institutional and community voices ensured that AI had the potential to open financial and market opportunities, but cautioned about the dangers of being outflanked. This is reflected in Thimna's view: *"AI will assist township traders reach larger markets; however, they will be left behind once more without skills. If we do not learn how to use it, others will benefit while we stay behind. It is like giving someone a car, but they do not know how to drive"*. A similar view is also shared by Justice, whose extracts are shared: *"We want AI to assist township small businesses, not turn them more reliant on the outsiders. If we depend too much on people who build the tools, we cannot grow on our own. We need to be taught how to use it ourselves"*.

It was noted that efficiency and increased access would only become a reality when the township entrepreneurs are confident in the AI tools and can apply them autonomously. Therefore, township entrepreneurs need to have speed and minimise human error. This was expressed by Sima, who mentioned: *"Since I sometimes lose track of my expenses, an app can remind me. I forget what I spent money on, especially when it is busy. I would be more*

organised if I had something that records it automatically". Nevertheless, the overall mood was one of reserved optimism, and the loopholes in preparedness threatened to undermine benefits. AI was thus perceived as a possible facilitator of inclusion, but only to the extent that it is based on local realities.

5.2 The role of community governance structures in supporting sustainable business practices

Township players stressed on several occasions that they were instrumental in closing the gap between policies and township entrepreneurs. They regarded themselves as reliable mediators who could help develop confidence in new technologies, such as AI tools. As one of the members of the ward committee, Gabriel stated, *"Explaining to the people how AI works would make them believe in us more than outsiders. People here trust those they know. If I, as someone they see every day, tell them how this technology can help their businesses, they will be more open to trying it"*.

Trust was found to be core to the adoption, as most township entrepreneurs were more inclined to interpersonal reassurance. For example, Henrietta expressed her view: *"People will listen to leaders they are familiar with; when these leaders say that this app is safe, then they will use it. It is not just about the app being good but about who tells them it is good. If someone from the community says it works, they will believe it more than if a stranger does"*. This emphasised the social embeddedness of the business decisions in a township setting. Actors of governance also emphasised the fact that they could ensure the advantages of AI were distributed equally among communities. This perspective suggests that adopting AI is both technically challenging and has significant implications. Township entrepreneurs also recognised that the assistance of the community leaders would help make AI-based tools acceptable, as expressed by Martin in the excerpts: *"Where our councillor brings training, many people will attend, but where outsiders attend by themselves, we do not. We feel more comfortable when someone we know is involved. It shows that the program is meant for us and not just dropped here without understanding our needs"*.

This implies that the community organisations assist in mobilising trust and engagement in programs. This sentiment was reflected in the perspective of stakeholders who had noted governance actors as cultural translators capable of orienting AI solutions to local practice. Nonetheless, other players in the township were also concerned with being marginalised in the implementation. This was expressed by Amos, who put forward: *"Sometimes the government undertakes projects without consulting us, and they fail. They bring things that do not fit our reality. If they talked to us first, we could guide them to what works here"*.

This dynamic suggests that long-term inclusion in governance must be adopted. Hence, community governance systems will continue to underpin sustainable and community-based business practices that combine AI.

5.3 Integration of AI technologies with local governance mechanisms

The township entrepreneurs emphasised that adopting AI must be organised in line with the local governance process and not imposed on them. Equally, the township leaders demanded participatory planning when introducing AI. This is expressed: *"I should combine AI with township planning; otherwise, it will be isolated. Bringing AI without linking it to what we already do in our community will not make sense to people. It must be part of our development plans"* (Themba). *"When we use our local meetings, people will see it as a part of their development. If it comes through our own platforms, like ward meetings or imbizos, then people will trust it more"* (Lindiwe). Entrepreneurs also wanted to be on par with one another, as depicted by Anele: *"I would rather learn in workshops, not only in my community hall. Sometimes those halls are used for political meetings, and I prefer neutral spaces where I can focus and ask questions freely"*.

Such revelations imply that AI can be normalised as an aspect of normal development, rather than an alien input, by linking it to governance systems. Another aspect that the institutional actors regarded as valuable was the integration of AI in municipalities and collaborative efforts. Among the participants, Justice stated: *"We can use*

AI to connect township businesses with city services such as permits and garbage collection. Suppose AI can help us track when the garbage truck is coming or when our permits are due. In that case, it will make our lives easier". This was buttressed by the voices on the ground, which associated AI with transparency, as noted by Gift: "When AI can assist us in overseeing our budgets, we will trust the government more. If we can see how money is spent and where it goes, then we will feel part of the process".

Business owners were willing to utilise technologies to communicate with local regulators, particularly regarding compliance issues. This was expressed: *"When I can renew my trading permit on my phone, it would save me time. I will not have to close my shop or travel to town just to stand in a queue".* Administrative convenience and participatory legitimacy were thus reflected in integration with governance. Such alignment is essential in ensuring that AI is relevant in township businesses.

5.4 Barriers and enablers of AI adoption among township entrepreneurs

The study revealed a nuanced mix of barriers and enablers affecting AI adoption among township entrepreneurs in South Africa. Four key impediments emerged: AI illiteracy, poor infrastructure, high data costs, and mistrust of AI systems. Entrepreneurs often lacked confidence in using AI tools beyond basic apps, as Varaidzo noted, *"I know how to use WhatsApp, but I do not know how to use apps to sell. I see others doing it, but I do not know where to start. It feels like a world of technology I am not part of, and I do not know who to ask for help".* This highlights a gap between everyday smartphone use and the skills needed for AI-driven commerce. Infrastructure issues, particularly unreliable network connectivity, disrupted transactions and eroded trust. Lindiwe shared: *"Sometimes the network just stops halfway through a transaction. You are left wondering if the money went through or not. It is frustrating because you cannot run a business when you are constantly unsure if your customer paid or received your order".*

High data costs limit digital engagement. Regererai explained: *"Data is too expensive, and I only use my phone when necessary. I have to choose between buying data or buying stock for my business. Most of the time, I just wait until I really need to go online".*

For small businesses, this economic barrier restricts access to online platforms and AI tools. Mistrust of online systems was widespread, with fears of scams discouraging the use of digital payments and AI. This psychological barrier, often rooted in experience narratives, undermines confidence in AI. Despite these challenges, several enabling factors were identified: youth engagement, community-based education, and institutional collaboration. Youth were seen as AI intermediaries. Rutendo remarked, *"When she is not at home, I do not even know how to post on Facebook Marketplace because her son does it for her. He knows all the tricks — how to take good pictures, write descriptions, and respond quickly. Without him, I would not be able to sell online".*

These generational dynamic positions younger individuals as potential ambassadors for AI. Community workshops were viewed as effective for building AI literacy. Kuzivakwashe stated, *"When we train at the community level, more people get involved. It is easier to learn when you see others like you doing it. It gives you confidence, and you do not feel like you are the only one struggling".*

Institutional stakeholders emphasised the need for affordable data and partnerships with network providers. Wilfred stressed: *"Network companies should sit down with us. Without cheap data, all our training will be in vain. We can teach people how to use AI, but it is pointless if they cannot afford to stay connected".* Together, these enablers suggest that with targeted support and inclusive interventions, township businesses can overcome barriers and begin to harness AI for sustainable growth.

5.5 A Policy Framework for AI Innovation and Participatory Governance

Participants emphasised that the successful integration of AI into township businesses must be underpinned by inclusive policy frameworks that reflect the socio-economic realities of these communities. Policymakers acknowledged existing disconnects in policy formulation, with Varaidzo noting: *“Policies are often drafted in offices without consulting those directly affected. This results in strategies that overlook township entrepreneurs’ practical challenges”*. Entrepreneurs expressed a strong preference for actionable support over abstract discussions. As one participant stated: *“We want less talking, more doing things like affordable data and hands-on training. Discussions alone will not help us grow our businesses”* (Anna). They also cautioned against top-down approaches, emphasising the importance of community structures engagement: *“Projects fail when the government does not talk to us. If we are not part of the conversation, the solutions will not work”* (Gift).

These perspectives underscore the need for participatory policymaking that is responsive and grounded in context. Stakeholders proposed policy frameworks that integrate AI innovation with local governance mechanisms. One policy actor suggested that financial institutions and fintech companies should simplify their platforms to accommodate entrepreneurs with limited AI literacy: *“Banks need to make their systems more accessible. Township players are not always tech-savvy, and complex platforms exclude them from AI opportunities”* (Amos).

Township actors also highlighted the role of AI in enhancing transparency and accountability. One participant remarked: *“If AI can help us monitor how budgets are spent, people will trust it more. It should not only be about business but also help us hold institutions accountable”* (Kuzivakwashe).

Inclusivity remained a central concern. Entrepreneurs stressed that AI should benefit all businesses, not just large enterprises. The insights collectively suggest the need for a policy framework that combines AI with community governance to promote inclusive, transparent, and resilient township economies.

6. Discussion

The study results indicate that AI can become an efficient way of operating in the township economy, expanding markets, and increasing financial access. However, its uptake is subject to institutional and socio-cultural moderation. This can be explained using the Institutional Theory (Scott, 2014), which demonstrates the interaction between regulative, normative, and cultural-cognitive factors. Township entrepreneurs raised concerns about mistrust and low AI literacy, which are related to cultural and cognitive barriers. In contrast, stakeholders raised concerns with policy design gaps, an example of regulative constraints. This is consistent with Rogerson (2019), who discovered that township economies are integrated within an intricate institutional setting that determines entrepreneurship behaviour. Simultaneously, the efficiency of AI and its ability to change access align with the World Bank’s (2021) focus on digital transformation as a source of financial inclusion in new markets. The results suggest that township entrepreneurs may not fully benefit from the advantages of AI unless the issue of institutional misalignment is addressed.

The normative aspect of institutional Theory was that local governance was a key facilitator of legitimacy and trust in getting into gadgets. Businessmen often said they could only trust AI tools when recommended by their local institutions. This is similar to Khosa et al (2017), who believe that social networks and informal practices are key to township entrepreneurship. This is supported by SLF, which highlights the impact of social capital on livelihood outcomes. Township actors become intermediaries that may bring technological solutions to culturally relevant practices.

Nevertheless, the omission of these actors during the policy development process can lead to a degradation of adoption (Mhlanga, 2021). Thus, cautioning against the application of technocratic strategies that overlook the

role of local governance. Hence, the results highlight the need to integrate AI into participatory governance models to achieve sustainable development of townships.

Combining AI and the local governance system brings up potential and conflict. On the one hand, there was a potential in connecting AI with municipal services, trading permits, and market regulation, which can be related to the processes of institutional adaptation, as explained by Powell and DiMaggio (2023). Conversely, the participants cautioned that without inclusionary mechanisms, inequality would only be strengthened, a point echoed by Wiid & Cant (2021), who noted that township economies remained susceptible to systemic disregard. The SLF is helpful in this case because integration enhances financial and human capital through the use of digital finance and training. However, the inadequacy of infrastructure restricts the use of physical capital. This dichotomy is indicative of the broader discussions on AI economies in Africa, where technology can both facilitate and divide, depending on the institutional setup (UNDP, 2023).

Furthermore, the identified barriers and enablers, including AI literacy, affordability, and trust, suggest that the implementation of AI depends on both institutional preparedness and household-based capabilities. The grief of the entrepreneurs concerning the expenses of the data and the fear of being scammed are indicators of limitations in financial and social capital. This aligns with the research by Moloji et al. (2022), which highlights infrastructure and a lack of trust as fundamental obstacles to the evolution of townships. Simultaneously, initiatives such as youth engagement and community training demonstrate a way to reinforce human and social capital, which aligns with the framework elaborated by Scoones (2015). These results suggest the need for a participatory policy regime that connects institutional frameworks to livelihood assets. In this way, the findings add to the discussions on inclusive development, demonstrating that AI can only become transformative when connected to governance and livelihood realities.

7. Conclusions and Recommendations

This paper explored the nexus between AI and township governance in creating sustainable township economies in South Africa. The results demonstrate that AI holds immense promise for enhancing operational efficiency, expanding market reach, and promoting financial inclusion. Nevertheless, these factors are limited by institutional obstacles. The researchers also found that local governance players have a significant role in legitimising the adoption of AI technology and participation mobilisation. Theoretically, the results confirm institutional Theory by demonstrating the interaction of the regulative, normative, and cultural-cognitive dimensions to determine technology adoption in township economies. Similarly, the SLF highlighted how AI impacts various types of capital, including financial inclusion through digital platforms and the empowerment of social capital through collective learning. In practice, the research suggests an AI policy that combines participatory governance with the integration of AI technologies. This form of integration is crucial in ensuring that the integration of AI helps townships become more inclusive and resilient. The research, therefore, contributes to the body of literature on AI transformation in marginalised economies and provides policy implications of sustainable development.

In response to the findings, several recommendations are made to guarantee the effective implementation of AI in township economies. Policymakers should focus on capacity building through the development of AI literacy programs tailored to the township context, based on the specific needs of the community and utilising local languages and community-based learning methods. In addition, infrastructural investment is also essential, and the government, with the help of partners in the private sector, should develop affordable data, stable electricity, and localised internet for townships. Furthermore, trust-building initiatives such as open-AI platforms, fraud prevention tools, and co-design initiatives that engage the communities in developing the system should be introduced. Additionally, there should be active policies that acknowledge and embrace the involvement of township governance players as stakeholders in introducing AI, which involves ensuring that these stakeholders are consulted and capacitated. More inclusive financing schemes, such as AI-based microcredit systems, must be

encouraged to enable even the most marginalised entrepreneurs to access them. The institutionalisation of hybrid governance systems is necessary to blend municipal control with communal legitimacy, thereby enhancing accountability and trust. The study further recommends establishing a system for constant monitoring and evaluation to track the adoption of AI and identify gaps as needed.

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Bramwell Kundishora GAVAZA

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

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